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Wiki Page: https://en.wikipedia.org/wiki/Chan-Jin_Chung

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Robotics Education project website: www.robofest.net

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I. Education

Ph.D. in Computer Science, Wayne State University, Detroit, Michigan, May 1997

B.S. in Computer Science, Hong-Ik University, Seoul, Korea, Feb. 1981

II. Work History

2012-present	Professor of Computer Science; Director of CAR (Cs Autonomous Robotics) lab; Robofest Advisory Board Chair	Lawrence Technological University (LTU)
2016-2018	Associate Chair of Dept. of Math & Computer Science	Lawrence Technological University
2014, 2015	Founding WRO National Director	World Robot Olympiad
2004-2011	Associate Professor of Computer Science	LTU
1999-2020	Director of Robofest	LTU
1998-2003	Assistant Professor of Computer Science	LTU
1997-1998	Full-time Lecturer	Dept. of Computer Science, WSU
1995-1997	Graduate Teaching Assistant (Half-time)	Dept. of Computer Science, WSU
1992-1997	Visiting Research Scientist	ETRI (Paid on leave to study/research at Wayne State University)
1985-1991	Senior Research Scientist	ETRI, S. Korea
1983-1984	Visiting Research Scientist (Software Design Engineer)	L. M. Ericsson AB, Stockholm, Sweden
1982-1983	Research Scientist	Electronics and Telecom Research Institute (ETRI), Korea

1981-1982	Member of Technical Staff, COBOL & DB Programmer	Korea Electric Company, South Korea
1980-1980	Programmer, On-the-job Trainee (Full-time, 3 months in summer)	The Bank of Korea, Seoul, Korea
1978-1979	Middle School Math Instructor (Part-time)	YMCA Academy in Seoul, Korea

III. Teaching Careers

Professor: Department of Mathematics and Computer Science, Lawrence Technological University, Tenured and promoted to Associate Prof. in Jan 2004, Promoted to Full Professor in 2012.

Classes Taught at Lawrence Tech since Fall 1998

Deep Learning and Neural Networks, Introduction to C with Robots, Intelligent Robotics with ROS (co-instruction with Nick Paul), Neural Networks and Deep Learning with Python; Coding Club – Scratch, Unified Robotics I, II, and IV, Concentration Project 1 & 2, Mobile App Development (Android Programming and C# programming for WP7), Android App and Augmented Reality, Autonomous Robotics for Education 1 & 2, Advanced Topics in Intelligent Systems, Advanced Topics in Computer Science, Advanced Java Programming, Introduction to Java Programming, Intelligent Systems (Introduction to Artificial Intelligence), Current Development in Intelligent Systems, Computer Science 1 in C++, Computer Science 2 in C++, Computer Science 2 in Pascal, Operating Systems, Senior Project, Topics in Information Systems, Robotics Programming, Robotics in Technology Education, Undergraduate Directed Study, and Topics in Math/Computer Science, and Collaborative Research Project I and II, Master of Educational Technology Theses

Full-time Lecturer: Department of Computer Science, Wayne State University, Aug. 97 - Aug. 24, 1998

Classes Taught at WSU

Introduction to Computer Science, C++ (Object-Oriented Design, Windows programming), COBOL (focused on solving Y2K problems), and Software Engineering

Graduate Teaching Assistant: Department of Computer Science, Wayne State University, Aug. 95 - May 97

Instructor: COBOL - Fall 1996 and Win 1997

Grader: Expert Systems, Analysis Algorithms, and Artificial Intelligence I and II

Instructor (part-time): YMCA Academy in Seoul, 1978 – 1979, "Introduction to Middle School Mathematics", www.ymca.or.kr

IV. Professional Research, Development, and Industry Careers (Before LTU, 1980 ~ 1998)

- <u>Mar. 1993 - May 1997</u>, Graduate Student and Visiting Research Scientist from ETRI at WSU: Artificial Intelligence Lab., Advisor: Dr. Robert G. Reynolds, Department of Computer Science, Wayne State University
  - CAEP (Cultural Algorithm with EP), General Purpose Function Optimizer, in C++, 1997: This is being used as a module in an expert system for AAA to detect fraud claims.
  - Development of CAGENO in C: Cultural Algorithm based GENOCOP (a Genetic algorithm for Numerical. Optimization Problems with Linear Constraints) developed by Dr. Michalewicz, 1996
  - Research on nonlinear programming using Cultural Algorithms
  - Development of robot soccer software for Khepera robots, 1997-1998
  - General Purpose Fuzzy Logic Controller in C, 1997
  - Genetic-Fuzzy Job-Shop Scheduler in Lisp, 1994
- <u>Jan. 95 - Dec. 95</u>, Webmaster, Department of Computer Science, Wayne State University, , Created & maintained the *first* Department homepage; Also maintained UNIX systems and LAN in the Department
- <u>March 82 - August 91</u>, Senior Research Scientist: Electronics and Telecom. Research Institute, Korea, http://www.etri.re.kr/eng (Aug. 91 - Aug. 1996: paid leaves of absence with five year fellowship for studying abroad)
  - Developed some standard software modules for TDX Electronic Switching System using CHILL, C, Z-80 & MC 68000 Assembly language, and SDL
  - Developed & taught software methodologies for TDX projects (based on UNIX/C and CHILL/ SDL). TDX system became the first commercialized CDMA mobile phone switching system in the world, later.
  - Developed a whole cross-linker and some functions for cross-assembler for Z80 target processor using UNIX/C for TDX-1
  - Developed Configuration Management Tools using Ingress & Polaris DBMS and C
- <u>Sep. 83 - Aug. 84</u>, Visiting Research Scientist: L.M. Ericsson Co., Stockholm, Sweden, http://www.ericsson.com
  - Developed Bothway trunk RP (Regional Processor) software modules for AXE-10 ESS using ASA210R Assembly language
  - Developed Bothway trunk software CP (Central Processor) modules for AXE-10 ESS using PLEX programming language and SDL-like specification language
- <u>Jan. 81 - Mar. 82</u>, Member of Technical Staff: Korea Electric Power Co., http://www.kepco.co.kr/eng
  - Developed COBOL modules for on-line CIS (Customer Information System) using IMS Database on a IBM 3031 mainframe
  - Expert of IBM "Check point restart" utility for very-large IBM IMS databases
- <u>Aug. 1980</u>, Student On-the-Job Trainee: The Bank of Korea, http://www.bok.or.kr/eng
  - Developed COBOL programs for statistical reports
  - Developed Fortran IV programs for statistical reports

V. Selected Research Projects at LTU (since Fall 1998)

<u>Major Funded Robotics Research & Robotics in Education Projects</u>

- SoarTech: $3,000 for ACTor project, 2021
- IBM grant for Detroit Robotics Outreach, 2021 (with Chris Cartwright)
- NDIA-MI: $2,500 for ACTor project, 2021
- US Army GVSC RTKLA Task 3, Jan 1, 2021 ~ Dec 31, 2021, Subcontract with GLST, $25,000
- Autonomous Taxi Services during 2020 Detroit NAIAS Auto Show in June, Yandex-MOBIS-LTU joint project supported by Michigan Department of Transportation, $1M (LTU portion: $30,000, pending due to COVID-19)
- US Army GVSC RTKLA Task 3, Dec 2019 ~ Dec 2020, Subcontract with GLST, $50,000
- US Army TARDEC RTKLA Task 1 & 2, Oct 1, 2018 ~ Nov 2019, Subcontract with GLST, $75,000
- LTU reserve fund, $27,000 was granted for upgrading the electric vehicle #1's by-wire system, Aug 21, 2020
- Autoliv (2017), Velodyne VLP-16 Beam Lidar $7999.00; Seven Autoliv Gen 1.0 77Ghz Radars $723.24
- SoarTech (2017), Hokuyo UTM-30LX Scanning Laser Rangefinder, $4,800
- Developing Autonomous EV, funded by Hyundai MOBIS (2016) - $15,000 & Dataspeed - $45,000
- 2017 Ford Vehicle Team grants: $2,500
- King-Chavez-Parks(KCP) Grant for Robotics camps and workshops, partnered with OU's Gear-Up (2011 ~ 2012). $4,000
- Research on Intelligent Ground Vehicles through IGVC (Intelligent Ground Vehicles Competition) since 2003. DARPA Urban Challenge (2007), and RoboCup Soccer (2006 & 2007). As of Oct 2020, $97,800 funded by DENSO, BorgWarner, US Army TARDEC, Reatime Technologies, AUVSI, LTU fund, LTU Alumni Association. All sponsorship info can be found at: http://www.robofest.net/igvc/
- RoboCup: AIBO multi agent soccer using Tekkatsu API. All sponsorship info can be found on the web at: http://qbx6.ltu.edu/chung/aibo/ (Funding is included in the above IGVC item)
- Laptop robot platform research, L2Bot sponsored by DENSO. Funding is included in Robofest project. (See below)
- Development of patient's fall detection system using Kinect SDK (2011~2014), $5,000 funded by agility4life.
- Robotics Power Use, Inventory and Logistical Management Evaluation, with Robert Fletcher, PI; funded by TARDEC (Tank-Automotive Research, Development and Engineering Center), Subcontract by Battelle, TCN: 07-261, amount: $168,000. Completed in 2010.
- Robofest: $1,099,761 (as of Sep. 2020) funded by IBM Community Grant, TOYOTA, DENSO, MOBIS, FUTEK, US Army TRADEC, National Defense Industrial

Association, Community Foundation for Southeast MI, The Chrysler Foundation, SolidWorks, IEEE, MI Council of Women in Technology Foundation, The Herbert & Elsa Ponting Foundation, Nielsen, ABB, RIIS, BCBS MI, Realtime Technologies, ROBOTIS. This amount includes the funding for WRO in 2014 and 2015 from Lego Education, GM Cadillac, MI Economic Development Co., DURR, SoarTech, etc. All the sponsorship info can be found on the web at www.robofest.net

NSF Project Awarded

- NSF REU (2022 ~ 2024), Collaborative Research: REU Site: Developing, Analyzing, and Evaluating Self-drive Algorithms Using Real Street Legal Electric Vehicles on Campus, as LTU PI (Leading Institution) with MSU, $281,712

NSF Proposals (Submitted, Pending decision)

- NSF CS for All (2022): Collaborative Research: Artificial intelligence and machine learning for problem-based middle level CS education at schools serving underrepresented populations, as LTU PI with KSU (Leading Institution), $ 450,133

NSF Proposals Submitted (Not funded)

- NSF ITEST (2021), Collaborative Research: Artificial Intelligence and Machine Learning for Middle Level Education, as LTU PI with KSU (Leading Institution), $691,873
- NSF CS for All (2021): Collaborative Research: Utilizing artificial intelligence and machine learning for teacher professional development in middle level CS education, as LTU PI with KSU (Leading Institution), $499,361
- NSF DRK-12 (2020): Collaborative Research: Artificial Intelligence and Machine Learning Education for K-8 Students, as LTU (leading institution) PI with KSU, $836,844
- NSF AISL (2012) – RPM (RoboParade with Music) as PI, $1,298,858
- NSF ITEST (2011), I'M A STAR (**I**nnovative **M**ath **A**nd **S**cience learning **T**hrough **A**utonomous **R**obotics) as PI, $1,349,982
- NSF IGERT (2009) Research and Education of RFID-enabled Microsystems Probe Using Single- and Multiple-Material Micro and Nano Technologies for Bio and Environmental Sensing, with PI Dr. Dean Aslam, Michigan State University; Chung as Co-PI
- NSF STEP (2008) Freshman Design Course in Nanotechnology Using Robotic Van De Graaff Generators and Microcontrollers with PI Dr. Dean Aslam, Michigan State University; Chung as Co-PI, $1,510,203
- NSF TPC (2005), Teacher Training and Certification Program for Autonomous Robotics Education as PI, $635,250

Research Projects (Not funded)

- Medical AI Tech Institute (MAITI) – Proposal submitted to Sekonix, Korea (2018)
- CS+PA^2 - Learning Computer Science with Physical Activities and Animation; Math Dance (on going project)
- Robotics Therapy for Alzheimer Patients (2011~ 2012)

- Development of JAUS Based Sensors, a proposal submitted in 2010 to TARDEC JCR
- Comparative analysis of energy consumption for different robotics driving platforms, a technical report produced (2011)
- Faculty Advisor of DARPA Urban Challenge 2007: Autonomous robotic vehicle "Team Cybernet" with Cybernet Systems Corporation in Ann Arbor, the team was chosen as one of the 36 semi-finalists in 2007 to compete in the national final. Check out the following links: www.darpa.mil/grandchallenge/index.asp, www.cybernet.com/urbanchallenge/team.php
- Robot mannequin (joint proposal with ChungJu University to Korean Science Foundation, 2008, not funded)
- Evolutionary Scheduling: Web-based Conference Scheduling, Web based University Class Scheduling (Time-tabling). Web interfaces are being built by using J2EE; and optimizer is using Cultured Evolution Strategies. Various methods for handling constraints are being experimented. (Ongoing)
- Pervasive Computing (ubiquitous computing; Wearable computing): with various iButtons, TINI, and RFID systems (2003-2005)
- Development of the General purpose and Generalized Evolutionary Algorithms Framework for both combinatorial and numerical optimization problems by employing Cultural Algorithms, Evolution Strategies, Genetic Algorithms, Evolutionary Programming, Fuzzy Logic Control, and Neural Networks; in C++ and Java, 1999~current

Class Projects can be access on the web at: http://qbx6.ltu.edu/chung/classProjects.html

Other Projects – Web Database Related

- Robofest Management Systems (https://www.robofest.net/rms/) project manager, 2000-current
- Volunteer Management System (admin.robofest.org) project manager, 2002-current
- PSMS (Prospective Student Management System), 2003-2004
- myTutoring (formerly OTMS - Online Tutoring Management System) at Lawrence Tech University, project manager. www.ltuaac.org, 2002-2006
- Survey Management System project manager, 2001-2009
- EC based Conference Management System (www.ltumcs.net), 2003-2004

VI. Publications and Presentations

Scholarly Books and Thesis Published

- VcBot (Vision Centric roBot) with Java and JavaCV & C# and EmguCV (in preparation)
- CJ Chung, Introduction to Robotics Programming with Java for L2Bot, lulu.com (published in October, 2011)
- CJ Chung, RoboMath – Learning K-12 Math with Lego NXT-G Programming Language, lulu.com (October, 2011)

- ChanJin Chung and Joe Engalan, "Lego Robot Programming and Construction Guide – Learning with Lego Robot Games and Introduction to RCX code", 2000, Lawrence Technological University
- Chan-Jin Chung, Knowledge-Based Approaches to Self-Adaptation in Cultural Algorithms, Ph.D. thesis, Wayne State University, May 1997
- Chan-Jin Chung, et al., CHILL Programming Language, a series of TDX-10 books, vol. 7, Daejon, ETRI pub, 1994 (in Korean)
- Chan-Jin Chung, et al., TDX-10 Development Guidelines (I), a series of TDX-10 books, vol. 8, Daejon, ETRI pub., 1994 (in Korean)
- Chan-Jin Chung, et al., TDX-10 Development Guidelines (III), a series of TDX-10 books, vol. 10, Daejon, ETRI pub., 1994 (in Korean)
- Chan J. Chung and Sun H. Shin, CHILL programming guide, ETRI pub., Dec. 1990 (in Korean)
- Chan J. Chung and Sun H. Shin, TDX-10 Software Development Methodologies, a Training Course Handbook for TDX-10, ETRI pub., Book No. DGL/SWM-EB01, April 1989 (in Korean)

Journal, Book Chapter, or Professional Magazine Articles

1. Schulte, J.; Kocherovsky, M.; Paul, N.; Pleune, M.; Chung, C.-J. Autonomous Human-Vehicle Leader-Follower Control Using Deep-Learning-Driven Gesture Recognition. Vehicles 2022, 4, 243-258. https://doi.org/10.3390/vehicles4010016
2. Chan-Jin Chung and Lior Shamir, Introducing Machine Learning with Scratch and Robots as a Pilot Program for K-12 Computer Science Education, International Journal of Information and Education Technology (IJIET, ISSN: 2010-3689), http://www.ijlt.org/index.php?m=content&c=index&a=show&catid=153&id=832
3. Chan-Jin Chung, Robofest - A Playful Learning Environment Through Autonomous Robotics, Pädi Scientific Bulletin of Basic Sciences and Engineering of the ICBI, Vol. 7 Special No. (2019), pp. 1-3
4. Nicholas Paul and ChanJin Chung (2018) Application of HDR algorithms to solve direct sunlight problems when autonomous vehicles using machine vision systems are driving into sun, Computers in Industry, Volume 98, June 2018, Pages 192–196.
5. ChanJin Chung, Christopher Cartwright, and Joe DeRose, (2017) Robotics Festival and Competitions Designed for STEM+C Education, Robotics in STEM Education: Redesigning the Learning Experience, editor Myint Swe Khine, Springer, pp.131-170
6. Chung, C. (2014). Unveiling 2014 Robofest Challenges, Robot Magazine, January/February 2014, pp. 48-51.
7. Chung, C., Cartwright, C., & Cole, M. (2014), Assessing the Impact of an Autonomous Robotics Competition for STEM Education, *Journal of STEM education*, Vol 15, Issue 2, July-September 2014, pp. 24-34.
8. Kawatsu, C, Li, J. & Chung, C. (2013). Obstacle & Lane Detection and Local Path Planning for IGVC Robotic Vehicles using Stereo Vision, Robot Intelligence Technology and Applications 2, Vol. 274 of the series Advances in Intelligent Systems and Computing, Springer Publisher, pp 667-675

9. Kawatsu, C, Li, J. & Chung, C. (2012). Development of Fall Detection System with Microsoft Kinect (2012), Robot Intelligence Technology and Applications 2, Vol. 202 of the series Advances in Intelligent Systems and Computing, Springer Publisher, pp 623-630

10. CJ Chung (2014), The Global Robotics Art Festival (GRAF) – Robotics Artistry Through STEM, Robot Magazine, July/August, 2014, pp. 60-62

11. Chung, C., Marzougui, A., & Lahdhiri, T (2012), Region 4 and the Southeastern Michigan Section Help Foster STEM With Robofest PACE Project, IEEE USA in Action Magazine, Spring 2012, http://www.nxtbook.com/nxtbooks/ieeeusa/ieeeusa_spring12/index.php?startid=29#/29

12. Chung, C. (2011). ROBOFEST 2010 - Little robots perform big missions for STEM, Robot Magazine, January/February, pp. 60-64.

13. Chung, C. (2010). RoboParade – An opportunity to develop your imagination while having fun, Robot Magazine, November/December 2010, pp.48-49.

14. Maurice Tedder, David Chamulak, Li-Ping Chen, Santosh Nair, Andrey Shvartsman, I Tseng, and Chan-Jin Chung, "An Affordable Modular Mobile Robotic Platform with Fuzzy Logic Control and Evolutionary Artificial Neural Networks", The Journal of Robotic Systems, Vol 2, Number 8, Aug. 2004, Editors: Gerardo Beni and Susan Hackwood, pp.419-428.

15. Chan-Jin Chung and Robert G. Reynolds, "Knowledge-Based Self-Adaptation in Evolutionary Search", International Journal of Pattern Recognition and Artificial Intelligence Vol. 14 No. 1 (2000), pp. 19-33

16. Chan-Jin Chung and Robert G. Reynolds, "CAEP: An Evolution-Based Tool for Real-valued Function Optimization Using Cultural Algorithms," International Journal on Artificial Intelligence Tools, Vol. 7, No. 3, (1998), pp. 239-292

17. Chan-Jin Chung and Robert G. Reynolds, "Knowledge-Based Self-Adaptation Using Cultural Algorithms: An Evolutionary Programming Example," IEEE Transactions on Evolutionary Computation, 1998

18. Chan J. Chung et al., "Software Development System (SDS) for TDX-1," The ETRI Journal, Vol. 8, No. 2, Jul. 1986, pp. 135-151 (in Korean)

19. Chan J. Chung and Y.S. Chun, "TDX-1 Software Structure," Daedog Science Town Journal, Mar. 1985 (in Korean)

Conference Papers, Posters Published (*) presentation was done by Dr. Chung (**) External travel grant received

1. Mark Kocherovsky, Giuseppe DeRose, Nick Paul, CJ Chung, DeepSteer: Autonomous Driving through Convolutional and Recurrent Learning, April 20, 2022, Research Day, Lawrence Technological University (Poster), http://qbx6.ltu.edu/chung/papers/43_Kocherovsky_DeepSteer.pdf

2. Mark Kocherovsky, CJ Chung, Using Evolutionary Algorithms to Optimize Hyperparameters for Keras Deep Learning Models to Solve the Two Intertwined Spiral Problem, April 20, 2022, Research Day, Lawrence Technological University (Poster), http://qbx6.ltu.edu/chung/papers/42_Kocherovsky_Using.pdf

3. Joseph Schulte, Mark Kocherovsky, Nicholas Paul, Mitchel Pleune, CJ Chung, Gesture-Based Human-Vehicle Leader-Follower Autonomy Systems with a Bipartite Mapping Algorithm, April 20, 2022, Research Day, Lawrence Technological University (Poster), http://qbx6.ltu.edu/chung/papers/41_Schulte_Gesture.pdf

4. Tavin Ardell, CJ Chung, The Development of a Defect Detection System using Deep Learning and Computer Vision for the American Axle and Manufacturing (AAM) Valencia Facility's Advanced Inspection System, Research Day, Lawrence Technological University (Poster), http://qbx6.ltu.edu/chung/papers/40_Ardell_Detect.pdf

5. Kim Lam, Sydney Ross, Justin Light, CJ Chung, Using Machine Learning to Analyze Learning Styles of Lawrence Technological University Students Across Each College, April 20, 2022, Research Day, Lawrence Technological University (Poster), http://qbx6.ltu.edu/chung/papers/39_Lam_UsingML.pdf

6. Gerard Bringard, CJ Chung, The Prototype Development of IoT Based Wheelchair Tracking System for Detroit Metro Airport (DTW), April 20, 2022, Research Day, Lawrence Technological University (Poster), http://qbx6.ltu.edu/chung/papers/38_Bringard_Prototype4DTW.pdf

7. J. Dombecki, J. Golding, M. Pleune, N. Paul, C.J. Chung, "The Successful Integration of the Robotic Technology Kernel (RTK) for a By-Wire Electric Vehicle System with a Mobile App Interface," In Proceedings of the Ground Vehicle Systems Engineering and Technology Symposium (GVSETS), NDIA, Novi, MI, Aug. 16-18, 2022. (Submitted for OSPEC review)

8. Kim Lam, Sydney Ross, Justin Light, Chan-Jin Chung, "Learning style analysis of Lawrence Technological University students," MICHIGAN ACADEMY of SCIENCE, ARTS & LETTERS (MARSAL) Conference, Online, March 11, 2022 https://www.robofest.net/cs/MASAL2022StudyAssistant.pdf

9. Chan-Jin Chung, Paul Jaussen, "A pilot study on AI literacy, attitude, and acceptance level of a group of faculty members," MICHIGAN ACADEMY of SCIENCE, ARTS & LETTERS (MARSAL) Conference, Online, March 11, 2022 (*) https://www.robofest.net/cs/MASAL2022AIacceptance.pdf

10. Chan-Jin Chung, Shannan Palonis, Elmer Santos, Pamela Sparks, Christopher Cartwright, Design, Implementation, and Assessment of Synchronized Worldwide Online Robotics Competitions for Engineering and Computing Education, 2021 IEEE Frontiers in Education Conference (FIE), 2021, pp. 1-8, doi: 10.1109/FIE49875.2021.9637399. (Presented on Oct 16 at 9:30am) (*)

11. Ian Timmis, Nicholas Paul, Chan-Jin Chung, Teaching Vehicles to Steer Themselves with Deep Learning, 2021 IEEE International Conference on Electro/Information Technology, May 14 - 15, 2021, Central Michigan University, Mount Pleasant, MI (presented online) (*)

12. Joseph Schulte, Justin Dombecki, Mitchell Pleune, Giuseppe DeRose, Nicholas Paul, CJ Chung, *Developing Leader Follower Autonomy for Self-driving Vehicles Using Computer Vision and Deep Learning*, LTU Research Day 2021 Poster, https://youtu.be/_SzSCcQs3yc, http://qbx6.ltu.edu/chung/papers/LeaderFollower.pdf

13. Mark Kocherovsky, CJ Chung, *The Development of Scratch Programming Extensions for Machine Learning*, LTU Research Day 2021 Poster, https://youtu.be/8XrpUHWUY0s, http://qbx6.ltu.edu/chung/papers/SEML.pdf

14. Calvin Withun, CJ Chung, *The Design and Development of a Dungeons and Dragons Game Library and an Example Client Interface*, LTU Research Day 2021 Poster, https://youtu.be/fWYXNlZpVIU, http://qbx6.ltu.edu/chung/papers/DnD_Lib.pdf

15. Thomas Brefeld, James Golding, Mitchell Pleune, Giuseppe DeRose, Nicholas Paul, CJ Chung, *The Development of a Stable Four Way Stop Coordination Algorithm for Self-Driving Vehicles*, LTU Research Day 2021 Poster, https://youtu.be/tZ37nGXFs78, http://qbx6.ltu.edu/chung/papers/4wayStopCoord.pdf

16. Chung, C. J., Shamir, L., 2020, Introducing Machine Learning with Scratch and Robots as a Pilot Program for K-12 Computer Science Education, In 3rd International Conference on Future Learning (ICFL, Online), London, United Kingdom, December 17-19, 2020 (PDF) (*)

17. M. Pleune, N. Paul, C. Faulkner and C. -J. Chung, "Specifying Route Behaviors of Self-Driving Vehicles in ROS Using Lua Scripting Language with Web Interface," 2020 IEEE International Conference on Electro Information Technology (EIT), 2020, pp. 535-539, doi: 10.1109/EIT48999.2020.9208285. (*)

18. Mitchell Pleune, Nicholas Paul, Charles Faulkner, Chan-Jin Chung, An adaptable system to control behaviors of ROS systems through a web-based Lua scripting interface, 2020 Michigan Academy of Science, Arts, and Letters (MASAL) conference (*)

19. Shamir, M., Chung, C.J., Shamir, L., Community college STEM bridge program through course-based research experience, P-KAL Regional Meeting, Rochester, NY, 2019 (Poster and oral presentation abstracts)

20. Shamir, M., Chung, C.J., Shamir, L., Course-based research experience – the opportunity for community colleges and high schools, Equity in the Classroom Conference (oral presentations), 2019

21. Jose Gonzalez-Belmonte and CJ Chung, Selfie AR: Computer Application for Taking Pictures with Augmented Reality, April 2019, Research Day, Lawrence Technological University (Poster)

22. Zhen Liu and CJ Chung, Teaching Cars to Reproduce Human Driving Behavior Using Deep Neural Networks in a Simulated Environment, April 2019, Research Day, Lawrence Technological University (Poster). http://qbx6.ltu.edu/chung/stuproj/2019/Poster-ZhenLiu_Chung.pdf

23. Mitchell Pleune, Charles Faulkner, Sean Bleicher, Nicholas Paul, CJ Chung, A Modular Approach for Building an Academic Autonomous Vehicle Platform in the Classroom, April 2019, Research Day, Lawrence Technological University (Poster)

24. M. Shamir, M. Kocherovsky and C. Chung, "A Paradigm for Teaching Math and Computer Science Concepts in K-12 Learning Environment by Integrating Coding, Animation, Dance, Music and Art," 2019 IEEE Integrated STEM Education Conference (ISEC), 2019, pp. 62-68, doi: 10.1109/ISECon.2019.8882015.

25. Mirit Shamir, Mark Kocherovsky, and ChanJin Chung, "A Paradigm for Teaching Math and Computer Science Concepts in K-12 Learning Environment By Integrating Coding,

Animation, Dance, Music and Art", 2019 IEEE Integrated STEM Education Conference at Princeton University, NJ, March 2019 (the winner of 2019 Best Paper Award)

26. Paul, N., Pleune, M., Chung, C., Faulkner, C., Warrick, B., Bleicher, S., A Practical, Modular, and Adaptable Autonomous Vehicle Research Platform, IEEE International Conference on Electro Information Technology 2018 at Oakland University, Rochester, Michigan

27. Ian Timmis, Nicholas Paul, CJ Chung, Teaching Cars to Steer Themselves With Deep Learning, April 2018, Research Day, Lawrence Technological University (Poster)

28. Sindhu Jampani and CJ Chung, Optimizing University Course Schedules Using Evolution Strategies, April 2018, Research Day, Lawrence Technological University (Poster)

29. ChanJin Chung and Elmer Santos, Robofest Carnival - STEM Learning through Robotics with Parents, 2018 IEEE Integrated STEM Education Conference (ISEC) at Princeton University, NJ, Mar. 18, 2018 (*)

30. C. Chung and M. Kocherovsky, "CS+PA2: Learning computer science with physical activities and animation — A MathDance experiment," 2018 IEEE Integrated STEM Education Conference (ISEC), 2018, pp. 262-267, doi: 10.1109/ISECon.2018.8340497. (*)

31. Nicholas Paul, Gordon Stein, CJ Chung (2017), A Modular, Incremental, and Adaptable Framework for the Development of Robotics Systems, April Research Day, Lawrence Technological University (Poster). http://qbx6.ltu.edu/chung/papers/RoboticsFramework_ResearchDay17.pdf

32. Nicholas Paul, Jonathan Ruszala, Gordon Stein, and CJ ChanJin Chung (2017), Development of a Self-driving Electric Vehicle (EV), Michigan Academy of Science, Arts, and Letters (MASAL), March 10, Western Michigan University, Kalamazoo, Michigan

33. Gordon Stein, CJ Chung (2016), Rapid Development of a Mobile Robot Simulation Environment for the Intelligent Ground Vehicle Competition, Proceedings of the AUVSI XPONENTIAL 2016, May 2-5, 2016, Ernest N. Morial Convention Center, New Orleans (PDF)

34. Chung, C. C., Cartwright, C, & Chung, C, Robot Music Camp: An experiment to promote S. T. E. M. and Computer Science, 4th IEEE Integrated STEM Education Conference (ISEC), March 8, 2014, Princeton University, NJ (*)

35. Chung, C. (2014), Integrated STEAM Education through Global Robotics Art Festival (GRAF), 4th IEEE Integrated STEM Education Conference (ISEC), March 8, 2014, Princeton University, NJ (*)

36. Chung, C. & Cartwright, C. (January 2014), RoboParade: a Fun and Effective Way to Promote STEM Education, Proceedings of the 12th Hawaii International Conference on Education, Honolulu, Hawaii, Jan 5-9, 2014

37. Chris Kawatsu, Jiaxing Li, and CJ Chung (2013), Obstacle & Lane Detection and Local Path Planning for IGVC Robotic Vehicles using Stereo Vision, RITA (Robot Intelligence Technology and Applications) Conference, Denver Colorado, 2013

38. Chris Kawatsu, Jiaxing Li, and CJ Chung (2012), Development of Fall Detection System with Microsoft Kinect, Presented at RITA (Robot Intelligence Technology and Applications) Conference, Gwangju Korea, 2012 (*) (**)

39. Trudell, E., & Chung, C. (2009). Development of Methodologies to Assess the Impact of Autonomous Robotics Competitions in Science, Technology, Engineering, and Math Education, Proceedings of the International Technology, Education and Development Conference (INTED) in Valencia, Spain, 9~11th of March. ISBN: 978-84-612-7578-6.

40. CJ Chung, Designing Robot Competitions, Proceedings of Robotics Education Symposium, Georgetown University in Washington, DC., May 5-6, 2006 (*) (**)

41. Maurice Tedder and Chan Jin-Chung, A laptop computer based educational robot platform using Java, 2nd International Symposium Robotics Education, KAIST Daejon, Korea, Nov 5, 2004, pp. 62-84 (**)

42. Maurice Tedder and Chan Jin-Chung, Autonomous robot vision software design using Matlab toolboxes, Proceedings of SPIE (The International Society for Optical Engineering) – Intelligent Robots and Computer Vision XXII, edited by David P. Casasent, et al., October 25–28 2004, Philadelphia, Pennsylvania, USA, Vol. 5608, pp. 99-106

43. Thomas M. Burke and CJ Chung, Autonomous robot software development using simple software components, Proceedings of SPIE (The International Society for Optical Engineering) – Intelligent Robots and Computer Vision XXII, edited by David P. Casasent, et al., October 25–28 2004, Philadelphia, Pennsylvania, USA, Vol. 5608, pp. 107-117

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45. Wei-Wen Chang, Chan-Jin Chung, and Bernhard Sendhoff, "Target Shape Design Optimization with Evolutionary Computation", accepted on Aug. 13, 2003 in the proceedings of IEEE CEC (Congress on Evolutionary Computation), Canberra, Australia, December 8-12, 2003, Vol. 3 pp. 1864-1870

46. Chan-Jin Chung and Lisa Anneberg, "Robotics Contests and Computer Science and Engineering Education", Proceedings of ASEE/IEEE Frontiers in Education (FIE) 2003 Conference, Boulder, CO, Nov. 5-8, pp. FIF-8 ~ FIF-14

47. Andrey Shvartsman, Maurice Tedder, and Chan-Jin Chung, "A Modular Mobile Robotic Platform As An Educational Tool In Computer Science And Engineering", in Proceedings of International Conference on Computer, Communication and Control Technologies (CCCT) '03, July 31-Aug 2, 2003, Orlando, Florida, IIIS Volume V, pp. 314-317 (*)

48. Tomas B. George, Vitaliy Opalikhin and ChanJin Chung, "Using Evolution Strategy for a University Timetabling System with a Web based interface to gather real student data", Proceedings of GECCO (Genetic and Evolutionary Computation Conference) 2003, Editor: Bart Rylander, Chicago, Illinois, July 12-16, pp. 107-113.

49. Tomas B. George and ChanJin Chung, "Applying Evolution Strategies to a University Timetabling System", Proceedings of GECCO (Genetic and Evolutionary Computation Conference) 2002 Late–Breaking Papers, Editor: Erick Cantu-Paz, New York, NY, July 9-13, pp. 179-184.

50. Chan-Jin Chung and William Sverdlik, "Robotics Education in the K-12 Environment", Robots and Education, Stanford Spring Symposium (a part of the annual AAAI spring

symposium series), Stanford University, Palo Alto, California, March 26–28, 2001, pp. 37-45 (*)

51. Chan-Jin Chung, "Methodologies for Developing Real-time Robot Software Using a Formal Specification Language – SDL", FIRA Robot World Cup France'98 Proceedings, pp. 17-26, ISBN 89-7163-102-3, Tae-Yong Publishing Co., Dec. 1999.

52. Chan-Jin Chung and Robert G. Reynolds, "Knowledge-Based Evolutionary Search," The 12th International FLAIRS Conference Orlando, Florida May 1-5, 1999

53. Chan-Jin Chung and Robert G. Reynolds, "Culturing Evolution Strategies to Support the Exploration of Novel Environments by an Intelligent Robotic Agent," in Proceedings of 7th Evolutionary Programming, San Diego, Springer-Verlag, 1998, pp. 219-228 (*)

54. Robert G. Reynolds and ChanJin Chung, "Fuzzy Approaches to Acquiring Experimental Knowledge in Cultural Algorithms," in the proceedings for the 9th IEEE Computer Society International Conference on Tools with Artificial Intelligence(ICTAI'97), Newport Beach, California, Nov. 3-8, 1997, pp. 260-267

55. Robert G. Reynolds and ChanJin Chung, "Regulating the Amount of Information Used for Self-Adaptation in Cultural Algorithms," in the proceedings of the 7th international conference on Genetic Algorithms (ICGA'97), 1997, pp. 401-408

56. Robert G. Reynolds and ChanJin Chung, "Knowledge-based self-adaptation in Evolutionary Programming using Cultural Algorithms," in the Proceedings of IEEE International Conference on Evolutionary Computation (ICEC'97), 1997, pp. 71-76

57. Robert G. Reynolds and ChanJin Chung, "A Cultural Algorithm Framework to Evolve Multiagent Cooperation with Evolutionary Programming," in the Proceedings of Evolutionary Programming VI, 6th International EP Conference, Lecture Notes in Computer Science, Vol. 1213, Peter J. Angeline, Robert G. Reynolds, John R. McDonnell, and Russ Eberhart (Editors), Springer-Verlag, 1997, pp. 323-333

58. Robert G. Reynolds and ChanJin Chung, "The Use of Cultural Algorithms to Evolve Multi-agent Cooperation," in the Proceedings of Micro-Robot World Cup Soccer Tournament (MIROSOT), Taejon, Korea, Nov. 8-12, 1996

59. ChanJin Chung and Robert G. Reynolds, "Function Optimization Using Evolutionary Programming with Self-Adaptive Cultural Algorithms", in Simulated Evolution and Learning, Selected Papers, Lecture Notes in Artificial Intelligence - 1285, Xin Yao and Jong-Hwan Kim (Editors), Springer-Verlag, 1996, pp. 17-26

60. ChanJin Chung and Robert G. Reynolds, "Function Optimization Using Evolutionary Programming with Self-Adaptive Cultural Algorithms," in the Proceedings of the first Asian-Pacific Conference on Simulated Evolution and Learning, Taejon, Korea, Nov. 8-12, 1996, pp. 21-

61. Robert G. Reynolds, ChanJin Chung, "A Self-adaptive Approach to Representation Shifts in Cultural Algorithms," in the Proceedings of ICEC 96, Nagoya Japan, 1996, pp. 94-99

62. ChanJin Chung and Robert G. Reynolds, "The Use of Cultural Algorithms to support Self-Adaptation in EP," in the Proceedings of Adaptive Distributed Parallel Computing Symposium, Dayton Ohio, Aug. 8-9, pp. 260-271

63. ChanJin Chung and R. Reynolds, A testbed for solving Optimization Problems using Cultural Algorithms, in the Proceedings of EP 96, San Diego, 1996

64. Chan J. Chung et al., "Using SDL in Switching System Development," in the Proceedings of 4th SDL forum, Lisbon, Portugal, Ove Fargemand and Maria M. Marques (Editors), Amsterdam, North-Holland, Oct., 1989, pp. 377-386 (*)
65. Chan J. Chung et al., "A Study on the automatic Database Generation for the Meta System," in the Proceedings of KISS (Korea Information Science Society) DB Conference, Vol. 2, No. 1, Seoul, Korea, Jan. 1988, pp. 133-141 (in Korean)
66. Chan J. Chung et al., "A study on the Meta System for supporting methodology development," in the Proceedings of 87 KISS Conference, Vol. 14, No. 2, Seoul Korea, Oct. 1987, pp 103-106 (in Korean)
67. Chan J. Chung, et al., "Implementation of System Description Language using LDM/SEM," in Proceedings of CASE studies, Ann Arbor, Michigan, 1987

Master of Educational Technology Thesis Advisor

1. Rose Cybulski, Educational Outcomes of Robofest and FIRST Robotics Competitions, 2010
2. Michael Dobbyn, A Comparative Study of, and Methodologies to Improve, the use of Middle School Robotics Competitions for STEM Education, 2010

Published Technical Memos

1. C. J. Chung (Sep. 2018). Move Your Body, Animate the Movement, and Learn Computer Science, LTU ARISE-TM-2018-1
2. Chung, C. & Cartwright, C (2011) Evaluating the Long-term Impact of Robofest since 1999, http://www.robofest.net/2011/ARISE-TM-2011-3.pdf, ARISE-TM-2011-1 (To be submitted to ASEE or INTED)
3. Chung, C. (2011). LBA: Learning By Authoring, a new pedagogy in learning, http://www.robofest.net/LBA/LBA.pdf, ARISE-TM-2011-1
4. Anderegg, D. and Chung C., Advisor (2011). Energy Consumption difference for NXT robots with varying mobile platforms, http://arise.ltu.edu/ARISE-TM-2011-2.pdf, ARISE-TM-2011-2
5. IGVC Team vuLTUre Design Report (2011), http://www.robofest.net/igvc/11/vuLTUre11DR.pdf
6. All IGVC Design Reports can be found on the web at http://www.robofest.net/igvc
7. CJ Chung, Learning through Competitions – Competition Based Learning (CBL), http://www.robofest.net/LBA/CBL.pdf, LTU CTL Poster Session, April 2008
8. ChanJin Chung, "Constraints handling in genetic algorithm based methods using Cultural algorithms", Ph.D. prospectus filed at Wayne State Univ., May, 1995
9. Chan J. Chung and Y.S. Chun, "Software Technology in Korea," ETRI Tech. Memo, 88-2260-53, July 1988 (in English)
10. Chan J. Chung, "Implementation Note: Cross Linker for TDX-1 Software," ETRI Tech. Memo., 86-3320-3, Mar.1986 (in Korean)
11. Chan J. Chung and C. I. Lee, "TDX-1 configuration management using Polaris DBMS," ETRI Tech. memo 85-3320-5, Dec. 1985 (in Korean)

VII. Invited Seminars, Keynotes, Talks, Courses, Demonstrations and/or Lectures Presented (Selected)

(**) External Travel Grant Received

- Michigan Defense Exposition and Opportunities Conference, Academic Panel Presentations - In the Beginning; The Birth of a Solution, Invited Speaker, Macomb Community College, April 20, 2022
- Inclusive Excellence Journal Club/Workshop: "Ethical Issues in Artificial Intelligence", Friday, November 19, 2021
- Video presentation at the Mexican Federal Congress Conference invited by Dr. María Marivel Solís Barrera to talk about Robofest and Online World Championship for her weekly program on the Congress Chanel on May 28, 2020. Dr. Solís Barrera is the president of science and technology of the federal congress of Mexico, who is in charge of science, technology and innovation commission. The video presentation on Facebook is at: https://www.facebook.com/472229373261994/posts/858179101333684/ Or YouTube link at: https://youtu.be/5q1lc1iG_YA
- Invited talk and demonstration at IBM Detroit, Introduction to Robofest Competitions, Sep 13, 2019.
- IEEE SEM Embedded Systems Workshop, invited speaker, Lawrence Technological University, Oct 20. 2018
- Panel speaker: TiECon Detroit 2017 Conference, CONNECTED MOBILITY track, the Detroit Marriott, GM Renaissance Center, Detroit, Michigan on November 9, 2017 http://tiecondetroit.org/speakers.php
- Keynote speaker, robotics conference, Instituto Tecnológico de Toluca, Metepec, Mexico, March 3, 2017
- International Robot Olympic "RoboShove" Category Chair, Gwangju Korea, 2012 (**)
- IEEE SEM 100th anniversary hexapod robot sumo presentation, Oct 11, 2011, The Henry Ford Museum
- Introduction to Robofest, IEEE-USA Annual Meeting, PACE break out session, Texas, Austin, March 4-6, 2011 (**)
- Robotics Demo, Alzheimer Association, Southfield, July 21, 2011
- Vision Centric Challenge and Multi Robot Collaboration, presented during IEEE SEM Fall Conference, U of M Dearborn, Nov., 4, 2010
- NXT-G for RoboParade, Winas Middle School, Detroit, Fri. Oct 1, 2010
- NXT-G II for RoboParade, Macomb Community College, Lorenzo Cultural Center, Sat. Oct 16, 2010
- NXT-G Workshop for RoboFashion & Exhibition, Lawrence Tech, Sat Feb 5, 2011
- RoboMath camp with NXT-G for teachers, Lawrence Tech, June 24, 2011
- L2Bot programming with Java, Lawrence Tech, June 28 ~ 29, 2011
- Android Mobile App Programming plus Lego NXT with LeJos, Lawrence Tech, July 18~19, 2011
- In 2011, organized 42 Robotics workshops and summer camps. Please check out Robofest 2011 report at: http://www.robofest.net/2011/robofest11report.pdf
- RobotC hands-on workshop, Robotics, Engineering, and Technology Week, Macomb Community College, May 2010

- Lessons learned through IGVC since 2003, presentation during IGVC Faculty Lessons Learned session, June 5, 2010. Oakland University
- Robofest Exhibitions, Maker Faire Detroit, The Henry Ford, Dearborn, July 31-Aug 1, 2010
- Robofest workshop instructor (Java, NQC, RCX code, and RoboLab) for school teachers and students since 2000
- Intelligent System Session Co-facilitator, Automotive-Robotics Cluster Initiative Partnership (ARCIP) Workshop Sponsored by the Association for Unmanned Vehicle Systems International Great Lakes Chapter (AUVSI-GLC) & Small Business Administration (SBA) 28 & 29 July 2009 Oakland University, Rochester MI
- Invited Speaker: Oakland University, Department of Computer Science and Engineering Seminar, Learning Computer Science through Intelligent Autonomous Robotics, Wednesday, October 29, 2008
- Introduction to Robofest, Robotics Educators Conference, Butler County Community College in PA, organized by Robotics Academy, Carnegie Mellon University, Aug 16-18, 2007 (**)
- Autonomous Robotics: A Wonderful Motivator in Science and Engineering Education for All Ages, RoboNexus 2005, San Jose CA, Oct 6-9, 2005 (**)
- International Robot Olympiad Korean Regional Competition, EXPO Science Park, Daejon, Korea, Aug. 5 – Aug. 9 2004
- RoboCup US Open, 4 Legged Robot Division, Georgia Tech, Atlanta, May 7 – May 10, 2005
- Robotics Exploration Day for Romeo Tech High School, Feb. 11 2005
- Robotics Demonstrations for Canton Charter Academy, Oct. 8 2004
- Introduction to Laptop Robots for High School Students, Metropolitan Detroit Science Teachers Association 64th Annual Science Conference, Oct 23, 2004
- "Introduction to Robofest – A playful Learning Environment", Metropolitan Detroit Science Teachers Association 64th Annual Science Conference, Oct 23, 2004
- "Laptop Robotics" for high school students – a program in Summer Science Institute 2004, sponsored by Natural Science Department LTU, June 28-July 2
- "Lego Robotics" for Technology Summer Camp for Girls, sponsored by AT&T, June 21-June 25, 2004
- "Introduction to Autonomous Robotics", Winship Middle School in Detroit for Girl Scouts, July 28, 2003
- "Introduction to RoboLab 2.5", Utica Instructional Resource Center, June, 2003
- A talk on Robotics and Robofest at Cranbrook Institute of Science, Feb. 22, 2003
- "Introduction to Autonomous Robotics", Troy Larson Middle School, January 8th, 2003
- A talk at University of Michigan Dearborn Engineering Seminar - The title of the talk: "Evolutionary Robotics" and "Robotics and Education", Friday, November 8, 2002
- Invited speaker for IEEE Southeastern Michigan Section Fall 2002 Meeting. Title of the presentation: "Autonomous Robotics - A Wonderful Motivator in AI research and Science & Engineering Education", Oct. 23, 2002
- Robotics Classes at Cerveny Middle School in Detroit, 2001-2002

- Robot summer camp for Girl Scouts of Metro Detroit, a part of Summer Odyssey program, LTU continuing education, July 8-19, 2002
- "Solving 3D Design Optimization problems using Multi-staged Evolution Strategies", competition session, WCCI Hawaii, 2002
- Autonomous Robot Demonstrations, Detroit Science Center, Feb. 21, 2002
- Autonomous Robot Demonstrations, UAW GM Headquarter in Detroit, Nov. 28, 2001
- "Robotics Lab Open House", Special event for a new technology and learning center dedication week, Lawrence Tech University, Sep. 17-22, 2001
- Robot demo for a group of girl scouts, LTU Robotics lab, July 18, 2001
- "Robotics: a wonderful motivator in Science and Engineering Education", LEGO Robotics Forum, Pierce Middle School Auditorium, sponsored by the Grosse Pointe Association For Gifted Education with the support of the Grosse Pointe Public Schools, Tuesday, May 15, 2001,
- Continuing Education Courses for schoolteachers: Building Lego Robots, in Aug. 1999, September 1999, Feb. 2000, and Aug. 2000
- Demonstration of Robofest 2001 games, Robotics and Education Stanford Spring Symposium (a part of the annual AAAI spring symposium series), Stanford University, Palo Alto, California, March 26–28, 2001 (**)
- "Robotics as a wonderful motivator in Math and Science", a guest speaker for Detroit Metropolitan High School Math and Computer Club on December 15. 2000.
- November 6, 2000, Invited Speaker, "Robotics and AI", ACM Michigan AI chapter.
- November 4, "Autonomous Robotics: A Wonderful Motivator in Science and Engineering Education", during the MDSTA (Detroit Metropolitan Science Teacher Association) conference at LTU.
- "Robotics and Lego Robot Games" at Center for Creating the Future in Southfield school district on July 20.
- "Intelligent Systems and Autonomous Robotics", ACM student chapter at LTU, March 30, 2000
- "Lego Robot Workshop for High School Teachers", invited by Blue Cross Blue Shield of Michigan, on March 3 and March 24, 2000
- Lego Robot Demonstration, Costello Elementary School, Troy, MI, Dec. 1999
- Robot Demonstration, LTU, July 15, 1999
- Khepera and LEGO Autonomous Robot Demonstration, LTU Open House, April 24, 1999
- Java Class Project Demonstration, LTU Open House, April 25, 1999
- "Evolution-based Approaches to Learning in Intelligent Mobile Robots using Cultural Algorithms", ACM SigArt Michigan Chapter Meeting, Feb. 10, 1998
- 2nd place, FIRA (Federation of International Robot-soccer Association) Robot World Cup France98 in Paris, June29-July3 1998, www.fira.net/fira
- Khepera Micro Robot Demonstration, ACM SigArt Michigan Chapter Meeting, Feb. 10, 1998
- Khepera Micro Robot Demonstration, Dept. of Computer Science Open House Wayne State University, Sep. 19, 1997

- Demonstration of CAGENO: Artificial Intelligence Group, Ford Motor Company, May 1, 1996
- Demonstration of CAGENO: 5th Evolutionary Programming Conference, San Diego, Feb. 28, 1996
- Demonstration of CAGENO: Dept. of Computer Science Professional Seminar Series, Wayne State University, Feb 14, 1996
- Demonstration of CAGENO: ACM SIGART Southeast Michigan chapter, Oct. 19, 1995
- Demonstration of CAGENO: Dept. of Computer Science Professional Seminar Series, Wayne State University, Oct 11, 1996 "CHILL Programming Case Studies", CCITT High Level language CHILL Summer Course at Korea Institute of Advanced Science and Technology in Seoul, supported by Korea Information Society, Programming Language Council, Aug. 24, 1989
- "TDX-10 Development Methodologies", MIMOS (The Malaysian Institute of Microelectronic Systems) Kuala Lumpur, Malaysia, April 18, 1988.

VIII. Certifications

- How to Manage Software Projects, by Integrated Computer Systems, Aug 7, 1987, Anaheim
- Software Requirements, Specifications & Tests, by Integrated Computer Systems, July 31, 1987, San Diego
- Defining Interactive Systems, Yourdon, Inc., 1986
- AXE Software Design Engineer, L. M. Ericsson, Stockholm, 1984
- National Technical Qualification Certificate, Information Processing Engineer, the first class, Reg. No. 80501002978, Republic of Korea, Nov. 15, 1980

IX. Professional Memberships

- Sigma Xi member (2021-)
- IEEE, Robotics and Automation Society, Evolutionary Computation Society
- IEEE Southeastern Michigan Section, Educational Committee Coordinator
- IEEE Southeastern Michigan Section, Robotics & Automation Chapter, Chair (2021-)
- CSTA (Computer Science Teachers Association), https://www.csteachers.org/
- AUVSI (Association for Unmanned Vehicle Systems International), https://www.auvsi.org/
- CSforAll, member, https://www.csforall.org/
- KSEA, Korean-American Scientists and Engineers Association, https://ksea.org/us/
- IROC (International Robot Olympic Committee) board member; in charge of Robot Weight Lifting competitions and RoboShove (1999-2015)
- ACM – Association of Computing Machinery (1998~2004)
- SMART - ACM SIGART Michigan local chapter (1995~1999)
- Evolutionary Programming Society (~2003)
- TIIS (Transactions on Internet and Information Systems) Editorial Board Member (1999~ 2000)

X. Selected Institutional Services Performed since 1995 in the USA

- Dear Search Committee at LTU (2019)
- LTU MSCS 4+1 program (2017)
- LTU MCS Software Engineering Concentration (2017)
- Registered trademarks: Robofest and RoboParade
- BSRE (Bachelor of Science in Robotics Engineering) degree program committee, 2011
- Mobile App Dev Graduate Certificate program proposed, 2010
- Founder and Director of RoboExpo (www.roboexpo.us) in 2011
- Founder and Director, Robofest, (www.robofest.net) Since 2000
- Founder of ARISE! (Autonomous Robotics Institute for Students and Educators), 2007
- Founder and Director of RoboParade since 2006
- Master of Educational Technology, robotics concentration, 2005
- Robofest Summer Camps: Since 2002
- Hosted OCCRA All Women's Robotic Tournament at LTU, Dec. 2001 ~ 2006
- Organized and directed MIT Handy Board Class, March 2001
- Faculty Search Committee Member, Lawrence Technological University, Math and Computer Science Department, 2001, 2004 and 2005
- Faculty Campaign Committee Leader, 2000, 2001, 2002, and 2003
- MSCS Welcome Open House for graduate student on Friday September 29, 2000, and 2003
- Hosted First Lego League 2000, Regional Tournament at LTU, Dec. 2000
- Chair, Computer Science Curriculum Committee, MCS Department, Fall 1999
- Founder, Intelligent Systems and Robotics Lab, Lawrence Tech. University, Feb. 2000
- Webmaster of MCS Department since 2000
- Laptop Evaluation Committee Member, Lawrence Tech. University, 2000
- LTU Open House Committee, Lawrence Tech. University, 2001-
- Chair Search Committee Member, Math and Computer Science Department, Lawrence Tech. University, 1999
- Administered the Computer Literacy Examination at Wayne State University (1996, 1997, Winter 1998)
- Editor of Computer Science Department WWW Newsletter (1995 - May 1997); http://www.cs.wayne.edu/csnews/news.html
- Creator and maintainer of Ph.D. picture board in the Department of Computer Science at Wayne State University (1995 - 1998)

XI. Professional Development

- Visual Studio .NET launch seminar, Feb. 13, 2002, Livonia, MI
- MIDP (Mobile Information Device Profile) programming seminar by Pillar Technologies, April, 2002, Northville, MI
- Allaire Servlets, JSP and JRun Training Course, Oct. 24-27, 2000, Chicago, IL

XII. Prizes, Honors and Awards:

- IEOM STEM Award, 5th NA Industrial Engineering and Operations Management Conference in Detroit, August 10-14, 2020
- Best paper finalist award, ISEC 2019, $150 (Mirit Shamir – 1st author)
- Faculty advisor of GlobalHack 2016 Software Competition Team that made finals, https://www.ltu.edu/news/?_from=/news/index.asp&_opt=detail&_cid=c385f306-891b-4a77-90c2-79cb200b83e3
- Faculty advisor of CS team participated in MSU's Spartahack in 2017 and 2018
- Faculty Advisor of Gordon Stein who won Best Student Poster Award at IEEE Southeast Michigan Humanitarian Technology Conference (HTC) held on July 17, 2015 at Burton Manor in Livonia. Stein's poster presentation was entitled "Development of Intelligent Firefighting Drones."
- Engineering Society of Detroit (ESD) GOLD Awards – Outstanding IEEE Member Award, Mar 11, 2015 at ESD Gold Award Banquet
- Citation of Honor Award, IEEE-USA, "for the leadership in founding the Robofest competition to inspire interest in engineering among pre-college students", March 2011
- MGA Achievement Award, IEEE Member Geographic Activities (MGA) Board, "for inspiring thousands of young students into the science and engineering career path through his Robofest and hands-on robotics workshops", December, 2010
- The Mary E. and Richard E. Marburger Distinguished Achievement Award – 2007 Champion for Institutional Excellence and Preeminence, Lawrence Technological University
- IGVC (Intelligent Ground Vehicle Competition) Awards
  - 2021 team ACTor Self-Drive 1st place, $3,000 (expected to receive)
  - 2019 team ACTor, Self-Drive 1st place, $2,000
  - 2018 team ACTor, Self-Drive 1st place, $3,000
  - 2017 team ACTor (Autonomous Campus Transport) won 1st Spec 2 challenge with $2,000
  - 2017 team iWheels 3 team won 3rd place grand award with $3,750
  - 2016 team BigFoot 2 team won 1st place Grand Award. $7,000 cash prize
  - 2015 team BigFoot won 2nd place in IOP challenge. $2,000 cash prize
  - 2014 team iWheels 2, 6th place Auto-Nav Challenge and 5th place IOP challenge awards with $500 + $500 = $1,000 cash prize.
  - 2013 team iWheels, won 6th place award with $1,000 cash prize in Auto-Nav Challenge
  - 2012 Team vuLTUre II, 4th Place JAUS, 5th Auto-Nav Challenge, $3,000 cash prize
  - 2011 Team vulture, JAUS (Joint Architecture for Unmanned Systems) 4th place, $300
  - 2010: Team Culture Shock II, JAUS 3rd place, $1,000
  - 2009: Culture Shock (4th place design and 6th place Navigation Challenge) and Viper II (JAUS Challenge award) - Total prize money: $1,350
  - 2008: Viper, 2nd place Autonomous Challenge and JAUS award, $3,000 cash prize
  - 2007: H2Bot II, 1st place Design and JAUS level II awards - $3,000
  - 2006: H2Bot, 3rd place award in Design, $2,000 cash prize
  - 2004: AISSIG, 6th place
  - 2003: CogitoBot, 4th place
- Selected to represent USA to compete at RoboCup 2007 Four-legged soccer division, Georgia Tech, Atlanta, GA

- 1st place cash prizes from HONDA R&D Europe GmbH, for 2D and 3D design optimization competitions, an event in Congress on Evolutionary Computation 2001 International Conference – Advisor of a student, Wei-Wen Chang
- Technology Mentor of the Year Award, Earhart School in Detroit, 2001
- 5h place cash prizes from ACM 99 Java Quest, advised two students: M. Frederick and N. Kopp, http://www.acm.org/jquest/quest99winners.html
- 1st place cash prizes as well as free registration of WCCI 03 from Evolutionary Programming Society in 3D design optimization problem. An event in World Congress in Computational Intelligence, Honolulu Hawaii, 2002 – Advisor of a student, Wei-Wen Chang
- Summer research grant for laptop robots from Lawrence Tech University, College of Arts and Science, 2002
- Travel grant for AAAI Spring Symposium at Stanford University, 2001
- Small Research Grants, Office of Research, Wayne State University, April 1998
- Thesis/Dissertation Research Support, Wayne State University, July, 1995
- ETRI Fellowship to study abroad, ETRI, 1991-1996
- Best Paper Award: Chan-Jin Chung and Robert G. Reynolds, "Knowledge-Based Evolutionary Search," The 12th International FLAIRS Conference Orlando, Florida May 1-5, 1999
- Excellent Graduate Teaching Assistant Award, College of Science, Wayne State University, May 1997
- Graduate Professional Scholarship, Wayne State University, 1995-1996
- Excellent Research Award, ETRI, 1986
- Special Merit Award, Hong-Ik University, 1981
- Merit Scholarships, Hong-Ik University, 1977 - 1981

XIII. Peer Reviews

Book Review

- Evelyn Stiller and Cathie LeBlanc, Client/Server Programming and Design Using Java, Addison-Wesley, 2005
- Wan Choi, et al., SDL environments, a series of TDX-10 books, Vol. 6, Daejon, ETRI pub., 1994
- Y. Daniel Liang, Introduction to Java Programming, Prentice Hall, 1999

Journal Paper Review

- TE-2012-000032, IEEE Transactions on Education, Special Issue, April 2012
- Paper#93 for IEEE Neural Networks Council, Transactions on Evolutionary Computation, Oct. 1997
- Paper#93R for IEEE Neural Networks Council, Transactions on Evolutionary Computation, May. 1998
- Paper TEC #625 for IEEE Transactions on Evolutionary Computation, June. 2002

Conference paper reviews including the following in 2003 for CEC2003 (Selected):

- 3 papers for RITA 2012
- Comparative Studies on Micro Heat Exchanger Optimisation, authors: Tatsuya Okabe, Kwasi Foli, Markus Olhofer, Yaochu Jin, Bernhard Sendhoff
- Development and Testing of a Morphological Geometric Representation Scheme for Topology Design Optimization using a Genetic Algorithm: authors: Kang TAI, Shamim AKHTAR
- Comparing Neural Networks and Kriging for Fitness Approximation in Evolutionary Optimization, authors: Lars Willmes, Thomas Ba"ck, Yaochu Jin, Bernhard Sendhoff

XIV. Professional Community Services and Activities (Selected)

- ICFL 2021 Technical Committee member
- Wayne-Westland Community Schools, K-12 College & Career Readiness Advisory Committee member, 2021~
- Wikipedia article originator of "Competition-based learning" at https://en.wikipedia.org/wiki/Competition-based_learning , May 31, 2020
- Webmaster of LTU Annual High School Math Competition (by Prof. Mercher) site at http://qbx6.ltu.edu/ltucomp
- Caretaker of LTU Math Club and Mathematical Contest in Modeling (MCM) team (by Prof Favro) home page
- Facebook LTU MCS Page creator and administrator since 2011 - https://www.facebook.com/ltumcs
- IEEE SEM Robotics and Automation Chapter treasurer since 2006
- Coordinator, Lego robot classes, Feb-April 2005 George Crockett Academy in Detroit
- First Lego League 2003 Judge, Dexter-Elmhurst Community Center, Detroit, Nov 22, 2003
- Volunteer Faculty Support for Metro Detroit of Girl Scouts Summer Camp, Winship Middle School, Detroit, July-Aug, 2003
- Volunteer Webmaster and care taker for Arts Academy in the Woods, Warren Woods Public School, artacademy-woods.org, since 2001
- Volunteer webmaster: First Baptist Church of Royal Oak, An American Baptist Church – www.firstbaptistro.org (Till December 2009)
- South Oakland Warming Center Volunteer Webmaster, Jan. 2001
- Volunteer Web Administrator for Children's Home of Detroit Websites: 2000 Auctions (www bid4kids.org)
- Volunteer Webmaster for Warren Woods Public School Musical Programs, 1999, 2000, (artacademy-woods.org/warrenwoods)
- Volunteer Webmaster, LTU MCS Department, since May 2000, www3.ltu.edu/mcs
- Volunteer Editor of Dept WWW newsletter, LTU MCS Department, since May 2000: qbx6.ltu.edu/chung/mcsnews
- Free Summer Robot Camp for Children of Lawrence Tech Faculty and Staff, Aug. 9 and 10, 2000

- International Science Olympiad, Judge, Intel ISEF (International Science and Engineering Fair), May 9 and 10, 2000
- Volunteer Team Coach for Costello Elementary School in Troy for the first FIRST LEGO LEAGUE at U of D Mercy in Dec. 1999
- Volunteer Team Coach for Larson Middle School in Troy for the FIRST LEGO LEAGUE, 2000, 2001, and 2002
- Volunteer Webmaster for Children's Home of Detroit 1997, 1998 and 1999 Auctions (www.cs.wayne.edu/bid4kids and bid4kids.org)
- Volunteer Webmaster of ACM SIGART local chapter, URL: www.cs.wayne.edu/~smart/ since 1997
- Maintaining ENCORE (Evolutionary Computation Repository) Mirror Site at Wayne State University ftp://ftp.cs.wayne.edu/pub/EC/Welcome.html since 1995
- Posting Khepera Micro Robot FAQ webpages at http://www.cs.wayne.edu/~jcc/FAQ/khepera.html since 1997

XV. In the news after 2004 (Selected)

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- Lawrence Tech wins self-driving car competition, The Oakland Press, 2019, https://www.theoaklandpress.com/news/local/lawrence-tech-wins-self-driving-car-competition/article_e73139e6-8dcb-11e9-b1cf-03fbd1b70194.html
- ACTor – Oakland Press, 2018
- Campus Taxi, DBusiness, https://www.dbusiness.com/daily-news/lawrence-technological-university-begins-autonomous-campus-taxi-research/
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- Robofest: Free Press, https://www.freep.com/story/news/2017/05/13/robofest-lawrence-tech-draws-school-age-engineers-and-their-self-driving-machines/321199001/
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- WRO: USA Today, https://www.usatoday.com/story/news/nation/2014/09/27/students-hope-to-represent-us-in-robot-olympiad/16367113/
- Robofest 2016 on Channel 7 News, https://youtu.be/o7_-uZZBGhk
- WRO Sochi Channel 7 News (Nov 2014) - https://www.youtube.com/watch?v=FwEkSqFB_po
- Robofest 2013 on PBS, http://www.dptv.org/programs/robofest/
- Fall Detection and Reporting System, Local WXYZ ABC Channel 7 News, 12-15-11
- Detroit Auto Scene, RoboExpo, 10-03-2011
- Channel CW50, StateChamps, http://www.statechamps.tv/2011/10/lawrence-tech-1st-annual-roboexpo-event, Oct 2, 2011
- Interview about IGVC. WJR, January 17, 2011
- Robofest 2011, Observer & Eccentric, May 15, 2011

- Robofest 2011, Farmington Press, May 25, 2011
- Farmington Observer, May 1, 2011
- IEEE-USA Honor of Citation Award, The Michigan Korean Weekly, June 15, 2011
- Robofest 2011, Times Herald, Apr 17, 2011
- BSRE and IGVC team, The Detroit News, Aug 22, 2011
- Robofest 2011, WWJ 950, Apr 5, 2011
- Robofest 2010, The Journal Gazette, May 11, 2010
- RoboParade, Detroit Free Press, Nov., 18, 2010
- RoboParade, WWJ 950, Nov. 15, 2010
- RoboParade, Macomb Daily Tribune, Nov. 21, 2010
- RoboParade, Detroit News, Nov. 20, 2010
- Over 20 newspaper articles, Radio, and websites, 2008-2009 year
- Channel 4 TV – IGVC, 2009
- Channel 20 TV – Robofest, 2009
- Over 30 Newspapers, TV news, web articles, and YouTube videos on Robofest, RoboParade, and LTU robotics, 2007-2008 year
- Over 20 newspaper articles in 2006-2007 year
- 4 TV news (Channel 2 two times, Channel 4, and Chan. 7) in 2006-2007 year
- MCWTF Summer Camp in June 2004 – an article appeared in Detroit Free Press, June 28, 2004
- Many other numerous newspaper and web articles across the nation
- More than 100 YouTube videos on Robotics