

Magesh Chandramouli, Ph.D.

Associate Professor

EDUCATION

Ph.D. Department of Computer Graphics Technology, Purdue University, USA	2011
GPA: 4.0 / 4.0	
Thesis : A GA-Enabled VR Framework for 3D Interior Space Configurations	
M.Sc. College of Engineering, University of Calgary, CANADA	2007
GPA: 3.7 / 4.0	
Thesis : GA-Based Optimization & Visualization to Solve Landuse Problems	
M.Eng. Faculty of Engineering, National University of Singapore, SINGAPORE	2003
M.Eng., By Research	
Thesis : Using 3D Visualization to construct a Road Inventory database	
B.E. GeoInformatics Engineering, Anna University, INDIA	1999
GPA: 7.5 / 10	

PROFESSIONAL EXPERIENCE

Associate Professor, Purdue University NW, USA (2017-)

Computer Graphics Technology

Department of Computer Information Technology & Graphics

Director Of Programs, EDG/American Society of Engineering Education (2019-)

Engineering Design Graphics Division, ASEE

Assistant Professor, Purdue University NW, USA (2011-2016)

Computer Graphics Technology

Department of Computer Information Technology & Graphics

Frederick Andrews Fellow, Purdue University, USA (2011-2016)

Fellow/PhD Student, Department of Computer Graphics Technology Envision

Center for Data Perceptualization

Summer Instructor, Purdue University, USA (Summer 2010,

2013) Gifted Education Research Institute

Game Development & Programming

Graduate Assistant, University of Calgary, CANADA (2005-2007)

Research Assistant, Schulich School of Engineering

Teaching Assistant: C++ for Engineers, Advanced GIS Applications

Systems Engineer, GIS Research Center, TAIWAN (2004-2005)

Research & Development Division, Feng Chia University

3D Modeler: Taipei Cyber City Project , City of Taipei

3D Animation for Soil & Water Conservation Bureau, Taiwan

Research Scholar, National University of Singapore, SINGAPORE (2000-03)

Research Scholar – 3D Road Inventory Database Using Visualization

Teaching Assistant –GIS In Engineering

Major Research Contribution & Awards

- PI, NSF Project MANEUVER: Manufacturing Education Using Virtual Environment Resources (\$881,425, 2017-2020)
- *Collaborator*, SMART MIT Research Grant (Singapore MIT Alliance for Research & Technology) (\$246,880, 2016-2018)
- *Collaborator*, Strategic Joint Research Fund, (\$49,880, Duration: 2016-2017)
- *Outstanding Research/Technical Paper* - American Society of Engineering Education/Editor's Award Engineering Design Graphics Journal (2016)
- *Warner Professional Practice Award*, International Honor Society for Technology (2018) ([link](#))
- NASA Research/Indiana Space Grants Consortium Grant Award (2015)
- *Outstanding Faculty Award*, College of Technology, Purdue University NW, 2016 ([link](#))
- *Outstanding Graduate Student Award*, Computer Graphics Technology, Purdue University, 2010
- *Frederick Andrews Research Fellowship*, Purdue University ([link](#))
- *Graduate Research Award*, William E Warner Awards Program, Epsilon Pi Tau
- American Society of Engineering Education/Engineering Technology Division Grant Award

National Research Panels/Committees

- *Panelist*, NSF National Graphics Concept Inventory Project, 2014 ([link](#))
- *Panelist*, National Defense Science and Engineering Graduate Evaluation Panel, 2017, 2014 ('17, '14)
- *Panelist*, Texas Instruments Expert Panel, 2015 - present ([link](#))
- *Member*, American Society of Engineering Education, Transformation Team, 2014 ([link](#))
- *Developer*, TEAMS Competition, Technology Students Association, based on National Academy of Engineering, 2014([link1](#), [link2](#))
- *Panelist*, Nature of engineering for K-12 education Project, 2015-16 ([link](#))

Research & Scientific Advisory Boards

- *Advisory Board*, Game Edu Lab, Singapore University of Technology & Design, 2015-present ([link](#))
- *Advisory Board*, National Resource Center - Materials Technology Education, 2017-now (MatEdu-[link](#))
- *Executive Board*, International Association of Journals & Conferences, USA, 2014 ([link](#))
- *Scientific Advisory Board*, Singularity & Infinity, Data Science Company, 2017-present ([link](#))
- *External Reviewer*, Rochester Institute of Technology Tenure Review, 2014
- *Reviewer & Invited Review for Articles* ([link](#))
 - Taylor and Francis Publications, 2017 ([link](#))
 - Journal of Engineering Technology, 2016 - Now ([link](#))
 - American Society of Engineering Education – [ASEE](#) Reviews (2010 - present)
 - American Society of Photogrammetry & Remote Sensing (2016)
 - International Journal of Geographic Information Science (2016)
 - Journal of Hypermedia and Multimedia, 2015

Invited Speeches and Keynote Lectures

- *Keynote Speaker*, National M-STEM Conference, Virginia, Nov 2017 ([link](#))
- *Speaker*, NSF/ AACC Demo (American Association of Community Colleges) NSF-ATE Conference (Low-cost VR Applications for STEM), Washington D.C. Nov 2017([link](#))
- *Keynote Speaker*, Virtual Reality (VR) Application in Disaster Mitigation, International Spatial Conference, Feng Chia University ([Keynote](#) Speech III) Mar2017

BOOKS

1. **Chandramouli, M.** (2015) Introduction to Animation, Purdue University Press/ Skyepack, ISBN 9781626710245 ([Google Books Link](#), [link2](#))
2. **Chandramouli, M.**, Chou, T-Y., & Chung, L.K. (2007). An Introduction to Visualization for Absolute Beginners. FCU Press. ISBN: 9789867621603 ([link1](#), [link2](#))
3. **Chandramouli, M.** (*Work In Progress* with Taylor & Francis publishers- Target – Aug.2018) 3D Modeling & Animation, Taylor & Francis, ISBN ([assigned](#)) 9781498764919.

BOOK CHAPTERS

1. **Chandramouli, M.**, & Huang, B. (2012). Virtual Environments for Geospatial Applications, Methods and Issues. Chapter in Encyclopedia of GeoInformatics, Karimi, H. A., (Ed.), Idea Group.
2. Huang, B., & **Chandramouli, M.** (2009). Spatial-temporal Object Modeling. Chapter in Encyclopedia of GeoInformatics, Karimi, H. A., (Ed.), Idea Group, 2007 ISBN 1591409950

Selected Journal Articles and Refereed Conference Proceedings

Chandramouli, M., Jin, G., Heffron, J., Cossette, M., Fidan, I., Merrell, W., Welsch, C. (2018) Virtual Reality Education Modules for Digital Manufacturing Instruction, ASEE Annual Conference proceedings

Fraley J., Imeri A., Fidan I., **Chandramouli M. (2018)** A Comparative Study on Affordable Photogrammetry Tools. ASEE Annual Conference proceedings

Chandramouli, M., Lei, E., Chou, T-Y., & Raju, S. (2016) Desktop Virtual Reality & iSpace for GIS Education through Interactive Virtual Learning Environments, Computers in Education JOURNAL. 7 (3), 91-104.

Chandramouli, M., & Chittamuru, S. T. (2016). Web-Compatible Graphics Visualization Framework for Online Instruction and Assessment of Hardware Concepts. Engineering Design Graphics Journal, 80(3).

Jin, G., & **Chandramouli, M.** (2016) Development of Casual 2D Game Laboratory Exercises in Introductory Computer Graphics Programming Course. Technology Interface International Journal. 16(1), 19-25.

Chou, T-Y., Hoang, T. V., **Chandramouli, M.**, Yeh, M-Ling. (2016) Integrating Agriculture Model into WebGIS: Case Study in Red River Delta, Vietnam. Intl Jl. of Research in Agricultural Sciences. 3(4), 2348 – 3997

Chandramouli, M., & Bertoline G. R. (2014). A genetic algorithm based optimization framework to visualize, evaluate and modify 3D space configurations in desktop VR. Intl. Journal for Simulation & Multi- Objective Design Optimization. Vol. (5) No.2. 36-47

Chandramouli, M., Narayanan, B., & Bertoline, G. R. (2014). A Graphics Design Framework to Visualize Multi- Dimensional Economic Datasets. Engineering Design Graphics Journal. 77(3): 1-14

Chandramouli, M. and Chittamuru, S.T. (2016) May. A prototype graphics framework for interactive instruction of computer hardware concepts. In 2016 IEEE International Conference on Electro Information Technology (EIT) (pp. 0281-0286). IEEE.

- Chandramouli, M.**, Lei, E., Chou, T-Y., & Raju, S. (2016) Prototype Design of GIS Virtual Learning Environments for Interactive Visualization using Desktop Virtual Reality (VR) & iSpace, Proceedings of the American Society of Engineering Education Conference, New Orleans, LA
- Chandramouli, M.**, Reid, P., & Zywicki, C. (2016) E-Texts as Low Cost Alternative Instructional Media in Computer Graphics Education: One Instructor's Journey, Proceedings of the International Conference on Engineering and Technology Education, Salvador, Brazil
- Chandramouli, M.**, & Heffron, J. (2015). A Desktop VR-based HCI framework for programming instruction. Integrated STEM Education Conference, 2015 IEEE (pp. 129-134)
- Chandramouli, M.**, Zahraee, M. and Winer, C., 2014, June. A fun-learning approach to programming: An adaptive Virtual Reality (VR) platform to teach programming to engineering students. In IEEE Intl. Conference on Electro/Information Technology (pp. 581-586). IEEE.
- Chandramouli, M.**, & Heffron, J. (2015) Enhancing Programming Skills of Engineering and Technology Students Using an Object-Oriented Multidimensional Desktop Virtual Reality (dVR) Framework, Conference for Industry & Education Collaboration (CIEC/ASEE), CA
- Chandramouli, M.**, Takahashi, & Bertoline, G. R. (2014) Desktop VR Centered PBL in ET Courses Using a Low-cost Portable VR System, Proceedings of the ASEE, IN
- Chandramouli, M.**, Elbadwi A.Q. I., Ziller, M., El Ashmawy, M. A., Zahraee, M. (2014) Underwater Remotely Operated Vehicle Manufacturing Assembly and Training Using X3D/ Virtual Reality Modeling Language, Proc. of Annual Conference of Intl. Association of Journals & Conferences, Orlando, FL
- Chandramouli, M.**, Bertoline, G., Elbadwi A.Q. I. (2014) Geometry and Graphics for Developing a Multimodal Multidimensional Desktop Virtual Reality framework, Proceedings of the Annual Conference of the International Association of Journals & Conferences, Orlando, FL
- Jin, G. & **Chandramouli, M.**, (2014) Development of Casual 2D Game Laboratory Exercises in Introductory Computer Graphics Programming Course, Proceedings of the Annual Conference of the International Assoc. of Journals & Conferences, Orlando, FL
- Chandramouli, M.**, & Bertoline, G. (2013) A Review of Multi-Objective Design Optimization and the Use of Genetic Algorithms Interior Design Optimization. International Journal of Engineering Research & Innovation. 5(1), 33-40.
- Chandramouli, M.**, Jin, G., Connolly, P. (2012). An Innovative Teaching Initiative using Processing@ Open Source Language for Graphics in First Year Engineering and Technology Courses. The Technology Interface International Journal 13(1), 52-61. ISSN: 1523-9926.
- Chandramouli, M.**, Huang, B., & Xue, L. (2009). Spatial change optimization: Integrating GA with visualization for 3D scenario generation. Photogrammetric Engg. & Remote Sensing, 75(8): 1005-1023.
- Chandramouli, M.**, Bertoline, R., & Connolly, P. (2009). Generating Alternative Engineering Design by Integrating Desktop VR with Genetic Algorithms. Engineering Design Graphics Journal, 73 (3): 1-12
- Huang, B., Liu, N., **Chandramouli, M.** (2006). GIS Supported Ant Algorithm for Linear Feature Covering Problem with Distance Constraints. Decision Support Systems, 42(2): 1063-1075.
- Liu, N., Huang, B., & **Chandramouli, M.** (2006). Optimal Siting of Fire Stations using GIS and ANT Algorithm. Journal of Computing in Civil Engineering, 20 (5): 361-369
- Huang, B., Li, H. G., & **Chandramouli, M.** (2004). Real-time environmental visualization with Web3D. Transportation Research Record, (1899): 181-187

RESEARCH GRANTS: Major National and International Grants Received

PRINCIPAL INVESTIGATOR, Project MANEUVER, National Science Foundation (NSF) GRANT

Duration: 2017-2020 Funding Amount-\$881,425

COLLABORATOR, SINGAPORE MIT Research Innovation Grant

Duration: 2016-2017 Funding Amount-\$246,880

COLLABORATOR; Strategic Joint Research Fund, SINGAPORE

Duration: 2016-2017 Funding Amount-\$49,880

OTHER SELECTED NATIONAL/REGIONAL GRANTS

- NASA Research/ Indiana Space Grant Consortium
- American Society of Engineering Education/ ETD Grant
- Purdue Research Foundation Grant
- Teaching Innovation Grant

HONORS & AWARDS

- Warner Professional Practice Award, International Honor Society for Technology (EPT), 2018
- NSF (National Science Foundation) ATE Grant Award, 2017
- Outstanding Technical Paper Award, EDGJ/American Society of Engineering Education, 2016
- Outstanding Undergraduate Faculty Award (CoT), Purdue University NW, 2016
- Singapore MIT Research Innovation Grant Award, 2016
- NASA Research/Indiana Space Grant Consortium Research Grant, 2015
- American Society of Engineering Education (ETD Section) Grant Award, 2014
- Outstanding Achievement in Sponsored Programs Award, Purdue University NW, 2014
- Warner Graduate Research Award, International Honor Society for Technology (EPT), 2010
- Faculty Professional Development Award, College of Technology, Purdue NW, 2012
- Graduate Excellence Award, Computer Graphics Technology, Purdue University, 2010
- Golden Key Chapter Scholarship Award, GK Chapter, Purdue University, 2010
- Frederick Andrews Fellowship, Purdue University, 2008
- Graduate Scholarship Award, Faculty of Engineering, University of Calgary, 2006
- NUS Research Scholarship, Faculty of Engineering, National Univ. of Singapore, 2001
- NUS Scholarship Award, National University of Singapore, 2000

DIPLOMAS / CERTIFICATES

- Applied Management Principles Certificate. Krannert School of Mgmt.. Purdue Univ.. USA
- Distance Learning Certificate, Office of Instructional Technology, Purdue University, USA
- Diploma in RDBMS, Oracle, Software Solutions Integrated Institute, INDIA
- Certificate in Quality Management, AU-TVS Institute, Anna University, INDIA
- Diploma in Advanced Modeling & Animation, 3D Training Institute, NY, USA
- Advanced Raster Graphics Certificate, New Horizons Training Institute, MI, USA
- Advanced Vector Graphics Certificate, New Horizons Training Institute, MI, USA

SPEECHES, INVITED LECTURES, & SELECTED PRESENTATIONS

- ◆ Invited Lecture: **National University of Singapore, SINGAPORE** (2016) ([Link](#))
Topic: Virtual Reality & Evolutionary Computation in Planning & Design of Built Environments
Faculty of Engineering, National University of Singapore
- ◆ Speaker: **National Flipped Classroom Conference, CA, USA** (2016) Topic: Flipped Classroom Practices
Lightning Session, Flipped Classroom Conference, Harvey Mudd College, California
- ◆ Presentation: **Intl Conference on Engineering Technology (InterTech) Education, BRAZIL** (2016)
Topic: E-Texts as Low-cost and Efficient Alternative in Computer Graphics Education
INTERTECH Conference, Universidade do Estado da Bahia, Salvador, Brazil
- ◆ Presentation: **IEEE (Institute of Electrical & Electronics Engineers) Conference, CA, USA** (2016) A
Prototype Graphics Framework for Interactive Instruction of Computer Hardware Concepts North Dakota
State University, Grand Forks, ND
- ◆ Invited Lecture: **Indian Institute of Science, Bangalore, INDIA** (2016)
Topic: Evolutionary Computation & Multi-Objective Optimization in Computer Graphics Department of
Computer Science & Automation, IISc.
- ◆ Invited Lecture: **National University of Singapore, SINGAPORE** (2016)
Topic: Affordable Desktop Virtual Reality for Interactive Learning in STEM Disciplines School of
Computing, National University of Singapore
- ◆ Invited Lecture: **Anna University, INDIA (2016)**
Topic: 3D City Visualization, Simulation, and Modeling Using GIS
Institute of Remote Sensing, College of Engineering, Guindy, Anna University
- ◆ Presentation: **IEEE Integrated STEM Education Conference, Princeton University, NJ, USA** (2015)
Topic: A Desktop VR-based HCI Framework for Programming Instruction
IEEE STEM Conference, Princeton University, Princeton, NJ, USA
- ◆ Presentation: **Conference for Industry and Education Collaboration Conference, CA, USA** (2015)
Topic: Enhancing Programming Skills Using Multidimensional Desktop Virtual Reality (dVR) Framework
CIEC/ASEE Conference, Palm Springs, California
- ◆ Presentation: **National Aeronautics and Space Administration, AL, USA** (2015) Topic: VR-Based
Interactive Pedagogical Tools For Additive Manufacturing Instruction NASA/AAQ Workshop,
Poster/Presentation, Marshall Space Flight Center | NASA
- ◆ Invited Lecture: **Singapore University of Technology & Design, SINGAPORE** (2015) Topic:
User-Centered Intuitive HCI for Multimedia Applications
Information Systems Design Pillar, SUTD
- ◆ Invited Lecture: **Indian Institute of Technology, Madras, INDIA** (2014) Topic: Genetic Algorithms in
Graphics & 3D Spatial Optimization Department of Computer Science and Engineering, IIT, Madras
- ◆ Invited Lecture: **Feng Chia University, TAIWAN (2015)** Topic: Multi-Objective Optimization in Urban
Planning GIS Research Center, FCU
- ◆ Presentation: **IEEE (Institute of Electrical & Electronics Engineers) Conference, WI, USA** (2014) Topic:
An Adaptive Virtual Reality Platform to Teach Programming to Engineering Students Milwaukee School of
Engineering, Milwaukee, WI, USA
- ◆ Presentation: **International Association of Journals & Conferences, FL, USA** (2014) Topic: 3D Design
Process for Manufacturing and Assembly
IAJC Conference, Orlando, Florida
- ◆ Presentation: **International Association of Journals & Conferences, FL, USA** (2014)
Topic: Underwater ROV Manufacturing Assembly & Training Using X3D/Virtual Reality Modeling
Language IAJC Conference, Orlando, Florida
- ◆ Invited Lecture: **Vellore Institute of Technology, Vellore, INDIA** (2014) Topic: Integration of Computer
Graphics & Genetic Algorithms in GIS Office of Sponsored Research, VIT
- ◆ Presentation: **Assoc. of Technology, Mgmt., & Applied Engg. Conference, TN, USA** (2012) Topic: An
Innovative Teaching Initiative using Open Source Language for Graphics Education ATMAE National
Conference, Nashville, TN
- ◆ Invited Lecture: **Chinese University of Hong Kong, HONG KONG** (2010) Topic: Computer Graphics &
Applications in GIS, Department of Geography and Resource Management

Industry Research and Collaboration

- INDUSTRY COLLABORATION (**MSC**® Software)
 - Lab Software: Obtained Software Grant for APEX® Modeling/Simulation Software in CGT labs ([link](#))
 - Promoted MSC's Campus Representative Program for Student leadership & engagement
- INDUSTRY COLLABORATION (**SEELIO**®)
Actively collaborated with SEELIO® & worked with the students to build Online Digital Portfolio
 - Incorporated more than **100** students, trained, & helped build professional Portfolio (Portfolio [link](#))
 - Integrated portfolio development with Experiential Learning (ExL) courses (CGT 216, CGT [34000](#))
 - Student R. Maluchnik obtained Railcats Graphic Design Internship using Seelio Portfolio ([link](#))
 - Student M. Dombrowski was invited to present Portfolio to Dean's Executive Council ([link](#))
- COLLABORATION WITH OTHER RESEARCH INSTITUTIONS AND INDUSTRIES
 - Collaboration with CMEC (Center for Manufacturing and Excellence in Commercialization) to build low-cost Virtual Reality (VR) modules
 - Pair3D: Partner in Virtual Reality Research
 - Manufacturing Industries collaborating with my research: Allied Strand, Innovative3D
- **RESEARCH MENTORING: STUDENT ENGAGEMENT IN RESEARCH**
 - Mentored students who successfully received undergraduate research (URG) grants ([link](#));
 - Mentored many UG students for Senior Design Project
Student, Igor M. received Outstanding Student Award - Purdue Univ. Graduation Feature ([link](#))
 - Active Advising & *Student Mentoring inside and outside classes* (Student Testimonials – [link1](#), [link2](#))
 - Served as Chair/Member/Examiner for more than 15 graduate students: Masters, PhD committee
- STUDENT ENGAGEMENT IN RESEARCH & PEER-REVIEWED PUBLICATIONS
 - Student *Heffron* co-authored paper published in IEEE & presented in Princeton Univ. STEM Conf. ([link](#))
 - Student *Chittamuru* co-authored IEEE paper ([link](#))
 - Student *Cubillos* presented research work in Butler University Research Conference ([link](#))
 - Student *Chittamuru* co-authored published in Engineering Design Graphics Journal ([link](#))
 - Student *Ziller* co-authored paper presented in International Association of Journals & Conferences ([link](#))
 - Used Teaching Innovation Grant (TIG) to design Active Learning for CGT courses
 - Contributed to FYE (Freshman Year Experience) workshop (ICHE Persistence Grant Workshop) [link](#)
 - Purdue World Leaders Camp Faculty, Sessions for incoming undergraduate students, Summer'15
- INTEGRATING RESEARCH WITH TEACHING: INNOVATIVE COURSE DEVELOPMENT/DELIVERY
 - Implemented Active Learning (AL) in CGT courses to promote student engagement
 - Introduced Problem Based Learning (PBL) & conducted thorough evaluation post IRB approval
 - Shared AL/PBL activities at National Flipped classroom Conference ([link](#))
 - Designed courses to aid obtaining Industry-Recognized Certifications (Adobe®/Autodesk® Software)
 - Incorporated Portfolio Building into ExL Course CGT 216 to enhance Student Career Success
 - Initiated proposals for Instituting awards for CGT 34000 & TECH 646 to inspire students

Research Contributions reported on Media (Newspaper, Radio, and Online)

- Radio Interview, WJOB-Purdue Northwest Today with host Richard Rupp, September 28, 2017 ([link](#))
- TIMES Media Group (NWI Times PDF Version [link](#))
- Purdue Points of Pride: Featuring Magesh Chandramouli and his focus on applying virtual reality to digital manufacturing ([link](#))
- Bridge E-text developed by Purdue Calumet faculty ([link](#))