

Peter J. Staritz, Ph.D.
Mobile Phone: (765) 998-4737
Email: peter_staritz@taylor.edu

Highlights

- Ph.D. Robotics, Carnegie Mellon University
- Associate Professor of Physics & Engineering
- Missionary engineer (Bangladesh)
- Decades of experience engineering complex opto-electro-mechanical systems

Experience

Taylor University

August 2022 - Present

Associate Professor of Physics & Engineering

Responsible for teaching, mentoring and developing undergraduate students. Tasks include:

- Teaching classes and labs in Physics, Materials Science, Engineering and Design
- Encouraging and challenging students in their learning and spiritual development
- Providing learning experiences through guided research and development

Assistant Professor of Physics & Engineering

August 2019 – July 2022

The King's Christian Academy

August 2021 – May 2022

Physics Teacher

Responsible for teaching, mentoring and inspiring high school students.

- Teaching 15 students the course Physics 101, a dual enrollment course in Physics
- Encouraging and challenging students in their learning and spiritual development

Aurora Innovation

April 2018 – July 2019

Technical Program Manager

Responsible for overseeing the design and manufacture of hardware systems for self-driving vehicles. Tasks include program and project management, including:

- Coordination with customers, contributors and stakeholders
- Deployment of engineering management tools (Jira, Custom tools)
- Planning / Risk Management / Scheduling / Budgeting

Association of Baptists

November 2015 – April 2018

Project Manager

Responsible for the management of the construction of a \$7.6M hospital facility in a rural part of Bangladesh. Tasks include program and project management work, including:

- Design of hospital systems (septic system, helipad, medical gas, etc)
- Coordination with contributors and stakeholders
- Personnel management
- Quality control
- Planning / scheduling / budgeting

Part of what made this job challenging was bridging the large language and cultural divide between the expatriates and nationals. Understanding and leading in this culturally complex team required sensitivity to different cultural norms and balancing expectations with program needs. As part of this work I spent considerable time learning the local language and details of my host culture.

High / Middle School Teacher

August 2010 - May 2018

Homeschool Cooperative Teacher

Responsible for teaching classes as well as leading / overseeing laboratory experiments. In this role I taught high school and middle school students in small classes (up to 10 students) as part of a homeschool cooperative. I was responsible for developing a teaching plan, class notes and tests. In my classes I make a point of tying my life and faith experiences into lessons and I work hard to build and strengthen a Christian worldview. In this role I taught:

- High School Chemistry (10th grade, Auth: Wile), 8/2010 – 5/2013
- Middle School Physical Science (8th grade, Auth: Wile), 12/2016 – 5/2017
- Intro to C++ - Used MIT course materials to teach beginner level C++, 5/2015 - 9/2015
- Facilitator for Algebra I (9th grade, Auth: Shormann), 8/2017-5/2018
- Facilitator for Programming with C# (9-12th grade, Auth: CompuScholar), 8/2017-5/2018

Lockheed Martin – Advanced Technology Laboratories (ATL) July 2013 – October 2015

Acting Director, Intelligent Robotics Lab

Responsible for the operation of Lockheed Martin's corporate robotics laboratory with an annual budget of \$10M. Tasks included:

- Casting the vision for the lab and planning future research in conjunction with a team of engineers and researchers
- Managing 3 area managers and 22 employees - including the setting of SMART goals, evaluation of performance, management of training goals, and personnel management (tasking, conflict resolution, etc.)
- Developing proposals, including the identification of next-generation technical goals, development of coherent and compelling motivations and justifications, identification of and negotiation with potential partners, schedule & budget development, creation of accurate and concise proposal content and review and integration of contributor's inputs
- Reviewing of program status and performance, including evaluation of performance against technical goals, budget and schedule
- Managing interactions with the four other labs at ATL and with the upper management - including coordination of effort, balancing constraints and goals between the different labs, and contributing to the overall direction of the organization
- Presenting the work of our laboratory to potential teammates, customers, government and stakeholders through clear and concise presentations

Principal Investigator, Collaborative Operations in Denied Environments (CODE)

DARPA's (Defense Advanced Research Projects Agency) CODE program focused on the development of a team of heterogeneous unmanned aerial vehicles (UAVs) that could operate in a GPS and communications jammed environment. Responsible for:

- Managing the program's technical vision and ensuring the program's technical success
- Collaborating with the program manager to oversee the budgetary and schedule performance

- Researching the mission environment and understanding customer's needs
- Developing the technical foundation and concepts of operation

Engineering Program Development

Worked with technical staff at LM, teammates and DARPA to help develop strong opportunities and winning proposals. Responsibilities included:

- Strategy development - worked with the lab leadership to identify a strategic path that would meet both our goals and the customer's aspirations
- Development of technical concepts - worked with the technical team to plan future technical research to meet our corporate goals
- Customer interaction - worked with the customer to identify, understand and guide their interests to meet our capabilities
- Development of concepts of operation - developed technical research concepts into coherent and compelling operational scenarios
- Business development - identified new opportunities and new customers
- Proposal management - oversaw and contributed to the writing of many winning proposals

General Dynamics Robotic Systems (GDRS)

July 2003 – July 2013

Principal Investigator / Project Manager – microLIDAR

Responsible for the development of a family of scanning LIDAR (Laser Ranging) systems.

At the time, the state of the art in scanning LIDAR systems were physically large, heavy, and power hungry. My team's goal was to develop a next-generation LIDAR capable of high performance scanning in a small, lightweight and low power package. A total of 10 units were manufactured and provided to stakeholders before the program ended. The primary system measured approximately 4 in. x 4 in. x 6 in. and was very power efficient. Other versions of the design had different scan patterns fine-tuned to specific applications. Responsibilities included:

- Management of the technical team
- Mechanical design (structural, dynamic, thermal, scan simulation)
- Optical systems co-design and integration (assembly, calibration)
- Electrical system co-design and integration (board layout, thermal, EMI)

Principal Investigator / Project Manager - GDRS UAV Research Group

Researched the coordination of UAVs and Unmanned Ground Vehicles (UGVs) for battlefield dominance. Responsibilities included:

- Management of the technical team
- Design of UAV architectures (power, actuation, communications, computation and sensing)
- Electro-mechanical design of custom payloads
- Integration of third party payloads

Test/Demonstration Manager

Responsible for the field demonstration and testing of multiple robotic systems. These tests varied in complexity, duration of deployment, location and team composition. In all, I led over 30 deployments, ranging from simple (local locations, 2 to 3 day duration, fair infrastructure, team of four) to complex (distant locations, 6 week duration, limited infrastructure, team of 15).

Selected Publications

P. Staritz, J. McClurg, C. Miller, S. Wozniak, M. Schlenker. "Mud Dauber: Prototype of the Mobile Gantry Architecture," Int. Symposium on Robotics and Automation in Construction. July, 2022

W. Whittaker, P. Staritz, R. Ambrose, B. Kennedy, S. Fredrickson, J. Parrish and C. Urmson. "Robotic Assembly of Space Solar Power Facilities." J. Aerospace Engrg. Vol. 14, No. 2, April, 2001.

P. Staritz, S. Skaff, C. Urmson, W. Whittaker. "Skyworker: A Robot for Assembly, Inspection, and Maintenance of Large Scale Orbital Facilities." Proceedings 2001 IEEE International Conference on Robotics and Automation, Vol:4, 2001 pp. 4180-4185.

B. Anderson, J.E. Nealy, G.D. Qualls, P.J. Staritz, J.W. Wilson, M.-H. Y. Kim, F.A. Cucinotta, W. Atwell, G. De Angelis, J. Ware, A.E. Persans "Shuttle Spacesuit (Radiation) Model Development." 31st International Conference on Environmental Systems (ICES), 2001-01-2368, SAE, 2001.

Computer Skills

Autodesk Inventor & AutoCAD (Solid Modelling and Design)

ProEngineer

Microsoft Office (Word, Excel, PowerPoint, Project)

Matlab (Mathematical Analysis Software)

C/C++ Programming Language

Cyberlink PowerDirector (Video Editing)

Activities

Student of Taekwondo

Student of German

Model aircraft pilot (fixed wing, helicopter, quadcopter)

Education

Ph.D. Robotics: May 2003

Carnegie Mellon University

GPA – 3.72/4.00

Doctoral dissertation:

Force Guided Assembly Under Bias

Developed the algorithms and methodology to perform force guided assembly of fragile structures while components experienced significant biasing forces from external sources. Examples of biases included cables, hoses and oscillating masses.

B.E. Mechanical Engineering: May 1998

State University of NY at Stony Brook

GPA - 3.88/4.00 - Summa Cum Laude

Awards

2010 General Dynamics Land Systems (GDLS) Innovation Excellence Award – Recognition for

the technical achievements and innovations associated with the microLIDAR. GDLS is the parent company of GDRS and issues the award annually to one or two engineers across all of GDLS.