Kenneth Parker Trofatter

Ph.D. Electrical Engineering

Contact

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Education

Duke University, Durham, NC
Ph.D. Electrical Engineering 2022

University of Tennessee, Knoxville, TN
B.S. Engineering Physics 2011
B.S. Computer Science 2011

Skills

Electrical Engineering

- Electromagnetic theory
- Computer architecture
- Microwave engineering
- Electronics
- Embedded systems
- Microcontrollers: Arduino devices
- FPGA: Altera devices using VHDL

Software Engineering

- OS: Linux, Windows
- Languages: C, C++, Python, Java, MATLAB, bash, CUDA, assembly
- Web: HTML, CSS, JavaScript, LAMP
- Version control: Git
- Debugging, testing, documentation
- Data structures and algorithms
- Systems programming
- Multithreaded programming
- Parallel computing
- Cross-platform programming
- Computer graphics
- Machine vision
- Machine learning

Manufacturing

- CAD: SolidWorks, KiCad
- 3D printing
- PCB manufacturing

Technical Communication

- Graphics: Blender, Inkscape, GIMP
- Desktop publishing: LaTeX, JabRef

Professional Summary

Multidisciplinary research engineer that applies software engineering to laboratory work and scientific computing. Specializes in electromagnetism and computational imaging, but is generally fluent in physical and mathematical modeling. System builder that is driven to create and understand all parts of complex solutions to interesting problems. Incidentally an excellent reverse engineer. Enjoys collaboration.

General Skills

- Software engineering
- Scientific computing
- Computational imaging
- Reverse engineering
- Rapid prototyping

Research experience

Duke University, Durham, NC
Associate in Research, Graduate Fellow 2013-2018

- Collaborated to build walk-while-scan mm wave scanner
- System integrator
- Developed UI, GUI, data visualization
- Research lead on depth sensor fusion, image stitching
- Researched system registration, calibration, acceleration

Professional experience

Neurophos Inc., Durham, NC
Consultant 2022

- Implemented cross-platform multithreaded Thorlabs APT controller USB host in C with a high-level Python interface
- Interfaced with linear stage in interferometer
- Began researching wavefront calibration
- Implemented remote experiment operation
- Participated in technical discussions

Teaching Experience

Duke University, Durham, NC
TA, ECE 590 Math and Physics in Imaging 2018

Head TA, ECE 250 Computer Architecture 2018

- Managed undergraduate TAs

Undergraduate Lab Mentor, Smith Group 2014-2019

Awards and honors

UTK Douglas V. Roseberry Award 2009