KLAUS OKKELBERG

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US Citizen

OBJECTIVE

Electrical engineering Ph.D. candidate seeking an internship for summer 2016 in the areas of control systems, digital signal processing, or communications

EDUCATION

Georgia Institute of Technology, Atlanta, GA — *expected* 2017
Ph.D. in Electrical and Computer Engineering
Emphasis: Systems/Controls and Telecommunications
GPA: 3.66/4.0

University of New Orleans, New Orleans, LA — 2014
M.S.E. in Electrical Engineering
Thesis topic: Nonlinear filtering for battery health management
GPA: 4.0/4.0

The Pennsylvania State University, University Park, PA — 2011
B.S. in Electrical Engineering
Schreyer Honors College Scholar (Representing the top 1% of Penn State students)
Honors Thesis topic: Nonlinear control system for nuclear magnetic spectroscopy
GPA: 3.8/4.0

EXPERIENCE

Georgia Tech, Atlanta, GA

Teaching Assistant — Aug. 2015 – May 2016

- TA for GaTech ECE 2031, Digital Design Lab, part of the school's Undergraduate Professional Communication Program
- Managed two lab sections each semester with 70 students total
- Taught good writing style through 1-on-1 consultations for three technical reports
- Responsible for giving and grading weekly quizzes and writing reports

Xilinx, Inc., San Jose, CA

Intern — June 2014 – Aug. 2014

- Improved computer mathematical modeling of physical, 16 nm field-programmable gate array (FPGA) devices through Cadence modeling and Matlab/Verilog simulation
  - Increased accuracy of model to physical result by 20%
  - Improved speed by a factor of 15
- Developed theoretical model of switching noise magnitude
- Added unattended simulation functionality

University of New Orleans, New Orleans, LA

NASA-funded **Research Assistant** under Dr. Huimin Chen — July 2012 – May 2014

- Studied accuracy and speed of various nonlinear filters as related to estimating battery state of charge
- Researched use of Extended Kalman Filter for highly nonlinear systems through stochastic gradient estimation
- Proposed adjustments to the Unscented Kalman Filter and the Cubature Kalman Filter that increase filtering stability and accuracy

Pennsylvania State University, University Park, PA

Research Assistant under Dr. Jeffrey L. Schiano — March 2010 – May 2011

- Researched a marginal oscillator with a nonlinear feedback element for use in nuclear magnetic spectroscopy
- Studied sampled-data implementation in the presence of thermal noise
- Derived sensitivity of a Robinson marginal oscillator
- Optimized speed of simulation model by a factor of 100

PROJECTS

- Determined performance of MIMO configurations for LTE-Advanced
- Go-Pro-based underwater fish recognition and tracking using FAST SURF feature matching and dark channel prior transmission map estimation
- Detection of battery short circuit using high-gain adaptive observer
- Video jitter removal and stabilization using point feature matching and phase correlation
- Image reconstruction from incomplete, quantized measurements using discretized solution of Euler-Lagrange equation
- Estimation of vehicular dynamics through dual nonlinear filtering of vehicle state and operating parameters
- Investigation of resonant tunneling through a double-barrier diode
- Quantum interference visibility in an oscillating macroscopic mirror
- High-speed adaptive decision feedback equalization for SerDes communications
- Digital clock with laser display system for Senior Design Project

NOTES

Software: Matlab, Simulink, PSPICE, Multisim, Mathematica, AutoCAD, Solidworks, GIT, Photoshop, MS Office
Programming: Matlab, Fortran, C, Java, Python, Visual Basic, Perl, Tcl/Tk, LabView, LaTeX
Social Skills: Good communication skills, strong problem solving ability, excellent at teamwork