# KLAUS OKKELBERG

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US Citizen

## EDUCATION

**Georgia Institute of Technology**, Atlanta, GA — 2014–present
Ph.D. in Electrical and Computer Engineering
GPA: 3.77/4.00

**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
- Graduate 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 lab 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