KLAUS OKKELBERG

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OBJECTIVE

Focused, enthusiastic Ph.D. candidate in electrical engineering seeking an engineering position

EDUCATION

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

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

Xilinx, Inc., San Jose, CA
  Intern   June 2014 –
                                                                                                                Aug. 2014
  - Improved computer mathematical modeling of physical 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
  - Active in intern activities and participated in organic farming

University of New Orleans, New Orleans, LA
  Research Assistant under Dr. Huimin Chen   July 2012 –
                                                                                                               May 2014
  - Researched hybrid chemical/electrical model for batteries with respect to its nonlinearities
  - Studied accuracy and speed of various nonlinear filters for estimating state of charge
  - Proposed adjustments to the Unscented Kalman Filter and the Cubature Kalman Filter that
    increase filtering stability and accuracy
  - NASA-funded Masters through Ames Research Center Scholarship

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 through computer modeling and physical experimentation
  - Studied sampled-data implementation in the presence of thermal noise
  - Derived sensitivity of a Robinson marginal oscillator with respect to conversion gain and
    thermal noise
  - Optimized speed of simulation model by a factor of 100

PROJECTS

- Detection of short circuit in batteries using pulsed discharge and high-gain adaptive observer
- Video jitter removal 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 nonlinear filtering of 3 parameters, 7 variables, and 2 inputs
- 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

PUBLICATIONS

"Comparison of Nonlinear Filtering Methods for Battery State of Charge Estimation" University of New Orleans, 2014.
**"Conversion Gain and Sensitivity in Marginal Oscillators: Continuous and Sampled-Data Negative Resistance
    Converters"** The Pennsylvania State University, 2011.
"The Pulsar: A Revolution in Display Technology" Pennsylvania Center for the Book, Penn State University, 2010.
"Domino Tilings of Rectangles with Fixed Width" Journal of the Pennsylvania Governor's School for the Sciences, 2007.

NOTES

Software: Matlab, Simulink, PSPICE, Multisim, Mathematica, AutoCAD, Solidworks, Minitab, Photoshop, MS Office
Programming: Matlab, Fortran, C, Java, Python, Visual Basic, Perl, Tcl/Tk, LabView, LaTeX
Web Development: Javascript, AJAX, PHP, Python, CSS3, HTML, Apache, MySQL
Social Skills: Good communication skills, strong problem solving ability, excellent at teamwork
Volunteering: New Orleans Pride festival, Shell Eco-Marathon, Shell Oil/Viva Technology competition mentor for
    underprivileged students in New Orleans, Bike Around the Bay, Penn State philanthropy for children with cancer, Penn
    State campus beautification