SAMPLE ELECTRICAL AND COMPUTER ENGINEERING RESUME- PhD

FIRSTNAME LASTNAME

123 Beech St, Pittsburgh, PA 15213 • 412.555.8585 • ecephd@cmu.edu

OBJECTIVE

To establish a career in electrical engineering that can utilize my knowledge in digital signal processing and digital communications into industry application and technology development

SUMMARY OF QUALIFICATIONS

- 7+ years of research and engineering experience in signal processing and communications, specializing in recording channel design and wireless communications physical layer development
- Intensive experience in both simulation and spin-stand waveform processing of magnetic recording and optical recording channels, familiar with laboratory measurement equipment and high speed circuit operations, strong programming (Matlab, C) and hardware (DSP) design skills
- Thorough knowledge in the areas of communications theory, coding theory, linear algebra, estimation/detection/identification theory, information theory, and applied statistics
- Exceptional interpersonal and communication skills with a dedication to promoting effective teamwork

EDUCATION

CARNEGIE MELLON UNIVERSITY Pittsburgh, PA

Ph.D. in Electrical and Computer Engineering — August 2015
Thesis: "Advanced Detection for High Density Magnetic Recording Channel"

SHANGHAI JIAOTONG UNIVERSITY Shanghai, China

M.E. in Communication and Information Systems (Graduated with Honors) — December 2010
Thesis: "Study of Adaptive Turbo Coded Modulation for Future Wireless Communications"

B.E. in Communication Engineering — July 2008
Thesis: "Application of Reed-Solomn Codes in Frequency Hopping Radio Systems"

PROFESSIONAL EXPERIENCE

Carnegie Mellon University, Data Storage Systems Center

Research Assistant — 01/2011 – Present

Developed advanced detection schemes for future perpendicular recording channels using communication theory and signal processing technology, sponsored by Seagate Technology

- Proposed a novel jitter sensitive detection algorithm for transition noise dominant perpendicular recording channels, which provides lower Bit-Error-Rate (BER) than state-of-the-art signal-dependent noise cancellation schemes (Patent pending)
- Proposed a simulation-based algorithm to compute, with higher accuracy than existing methods, the achievable information rate of ISI channel in presence of signal dependent transition noise
- Developed an iterative algorithm to estimate the statistics of transition jitter from spin-stand read-back waveform
- Developed a complete simulation system for read channel (in C), comprising turbo/LDPC encoder/decoder, realistic perpendicular recording channel model, AGC/timing recovery, GPR target/equalizer design module, noise-whitening filter, SOVA/APP detector and post processing
- Investigated SNR sensitivity of capacity-achieving codes in both adaptive wireless transmissions and data storage systems

Sony Corporation, Optical Recording Development Group, Tokyo, Japan

Electronics Engineer (Intern) — 09/2013 – 11/2013

Developed innovative detection schemes for future optical recording systems

- Evaluated performance of numerous advanced detection schemes, with spin-stand waveforms, on Blu-ray discs and near-field recording systems
- Proposed and implemented (in C++) a new detection algorithm for near-field recording channel, creating great interest at SONY

Carnegie Mellon University, Electrical and Computer Engineering Department

Teaching Intern

"*Digital Communication and Signal Processing Systems Design*", graduate level Spring 2014

- Led projects, and enhanced student DSP theory and hardware design skills withTMS320C67X

"*Signals and Systems*", undergraduate level Fall 2013

- Led labs and recitations involving digital audio and image processing

Shanghai Jiaotong University, Wireless Communications Lab

Research Assistant 03/2008 – 12/2010

Developed adaptive transmission schemes for wireless communication systems

- Proposed a new variable rate coding scheme for frequency-hopping spread spectrum systems
- Implemented Reed-Solomn encoder and decoder with DSP processor TMS320C54X
- Trusted to write the proposal "Adaptive Turbo-TCM for Future Multimedia Mobile Communications," approval by China-NSF committee

INVENTION

- List of authors, "Jitter-Sensitive Maximum-a-posteriori Sequence Detection," Patent pending, filed June, 2014

PUBLICATIONS (Late submission due to pending patent)

- **List of authors**, "Information rate computation for perpendicular recording channel with non-Gaussian transition noise," Submitted for publication
- **List of authors**, "Jitter sensitive detection in transition noise dominant perpendicular recording channel," To be submitted
- **List of authors**, "Channel identification based on spin-stand read back waveform," To be submitted
- **List of authors**, "Advanced detection in near-field recording system," To be submitted
- **List of authors**, "Design and implementation of error-correcting code in Frequency Hopping communication systems," Communications Technology, vol.10, 2010
- **List of authors**, "Application of RS code in frequency hopping systems and its implementation," Telecommunications Information, vol.4, 2009

COMPUTER SKILLS

Languages: C/C++, Pascal, Assembly
Software: Matlab/Simulink
Hardware: DSP

PROFESSIONAL ACTIVITY

Reviewer for

- Vehicular Technology Conference (VTC), 2015
- International Conference on Communications (ICC), 2014
- IEEE Wireless Communications and Networking Conference (WCNC), 2013
- IEEE Transactions on Wireless Communications, 2013
- IEEE Global Telecommunications Conference (Globecom), 2012

SELECTED HONORS

- Research Fellowship, Carnegie Mellon University, 2011 – Present
- Research Fellowship, Shanghai Jiao Tong University, 2008 – 2010
- SIEMENS Fellowship, Shanghai Jiao Tong University, China, 2009