

## WORK EXPERIENCE

***Systems Engineer*** ***September 2015-Present***

NASA Goddard Space Flight Center Earth Science Mission Operations Code 428  
contracted by Honeywell Technology Solutions Inc

- Improvement of DevOps scripts resulting in more efficient operations
- Acquired Satellite Console Controller and Satellite Operations Controller certifications
- Achieved successful operations, maintenance, and troubleshooting of Landsat 8 without errors

***Co-Founder and Chief Technology Officer*** ***October 2015-March 2016***  
WeCook

- Managed DevOps team that successfully built and maintained a website using agile development practices to auto bill users on a regular basis, permit editing of chef appointments, and enable Chief Operating Officer to manage hundreds of appointments efficiently
- Obtained profit margins of 10-30% on bulk food chef appointments
- Attained revenue growth from hundreds monthly in October to \$10k monthly in February

***Test Engineer*** ***April 2014-September 2015***

NASA Goddard Space Flight Center Planetary Environments Laboratory Code 699  
under the supervision of Dr. Paul Mahaffy, contracted by ADNET Systems

- Contributed to Martian satellite MAVEN, and Martian rovers Curiosity and ExoMars
- Calibrated and operated the MAVEN Neutral Gas Ion Mass Spectrometer (NGIMS) testbed and instrument
- Created Python scripts that trend MAVEN NGIMS testbed data and instrument sensitivity
- Improved usability of XINA online front-end web development products in AngularJS

***Research Assistant*** ***Summer 2012 and 2013***

National Institute of Standards and Technology (NIST) in Gaithersburg, MD  
under the supervision of Dr. Alan Migdall

- Developed simulations in Python of an efficient single photon source in the lab called the Number Squeezed State Generator (NSSG) by using Spontaneous Parametric Down Conversion (SPDC) with system feedback to achieve super-resolution and supersensitivity
- Built Maximum-Likelihood Estimation (MLE) fitting program in Mathematica and Java to characterize Transition Edge Sensor (TES) data output
- Constructed Modified Levenberg-Marquardt Algorithm (MLMA) fitting program in MATLAB for TES data output
- Programmed Monte Carlo simulations in C++ and Java of Fabry-Perot interferometers with various methods of intensity detection and various quantum states of light input to study sensitivity, visibility, and other characteristics
- Engineered low cost temperature controller to keep non-linear crystals in the range 20 C to 150 C to within 0.05 C
- Used the agile development method in C++ on Arduino to create and tune an easy to operate and troubleshoot temperature proportional-integral-derivative (PID) controller and GUI

***Research Assistant*** ***August 2010 - May 2013***

Quantum Science and Technology Group in Baton Rouge, LA  
under the supervision of Dr. Jonathan P. Dowling

- Programmed simulations in Mathematica and MATLAB of Mach-Zehnder interferometers with parity detection and various quantum states of light input
- Developed a GUI to run these simulations for a more interactive method to study sensitivity, visibility, and other characteristics
- Published in Physical Review A

## EDUCATION

***Louisiana State University, Baton Rouge, LA*** ***May 2013***

- Bachelor of Science in Physics with a Minor in Mathematics, 3.36 GPA

## SKILLS

### *Programming and Software*

- Languages: Python, C++, Java, JavaScript, Mathematica, L<sup>A</sup>T<sub>E</sub>X, MATLAB, Bash
- Libraries: matplotlib, NumPy, SciPy, SymPy, jQuery
- Frameworks: Meteor, Bootstrap, AngularJS
- Operating Systems: Ubuntu, Red Hat, Mac OS X, Windows
- Version Control: Git, SVN
- Other: Vagrant, VirtualBox, Jenkins, Amazon Web Services (AWS) EC2, Google App Engine

### *Instrumentation:*

- Quadrupole Mass Spectrometers
  - Operated, maintained, and executed troubleshooting of extremely sensitive \$50 million NGIMS at NASA Goddard Space Flight Center
- Piezoelectric sensors
  - Designed a low cost piezo controller Printed Circuit Board (PCB) for quantum metrology at NIST using Electronic Design Automation program KiCad

## PUBLICATIONS

### *Strategies for choosing path-entangled number states for optimal robust quantum optical metrology in the presence of loss*

*July 2012*

- Kebei Jiang, Chase J. Brignac, Moochan B. Kim, Hwang Lee, J. P. Dowling
- Research performed at Louisiana State University on quantum optical metrology using parity detection applied to path entangled Fock states in lossy environments
- Phys. Rev. A 86, 013826 (2012)

## HONORS & AWARDS

### *Landsat 8 Flight Operation Team Excellence Award*

*2016*

- For significant contributions to safeguarding the Landsat 8 mission

### *Google Talk*

*2016*

- Invited to Lenoir, North Carolina to talk about Landsat 8 at Google's data center

### *Pitch Dingman*

*2016*

- Won 2016 Pitch Dingman Competition grand prize of \$15,000 for WeCook

### *LA-STEM Research Scholars Program, LSU*

*2010 - 2013*

- Full coverage prestigious scholarship dedicated to promoting diversity in the STEM disciplines through academia, undergraduate research, and mentoring

### *S-STEM Scholars Program, LSU*

*2009 - 2013*

- Academic scholarship dedicated to promoting diversity in the STEM disciplines

## LEADERSHIP

### *Bitcamp Hackathon Co-Executive Director*

*2015 - 2016*

- Facilitated diversity, innovation, and creativity to make new technologies
- Managed extensive team of over a dozen directors
- Balanced budget amounting to hundreds of thousands of dollars

### *Startup Shell*

*2015 - Present*

- Fostering entrepreneurship through collaboration at UMD's incubator advising startups