

# Paul M. Kump

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paul@paulkump.com • (815) 715-7174 • www.paulkump.com  
1820 West Fletcher St. • Apt.2 • Chicago, IL 60657 • USA

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## Summary

*Creative independent with a passion for making new discoveries who welcomes life experiences with open arms and relishes any and all opportunities to teach and learn.*

At the age of 14, Paul took apart the electronics of his beloved guitar to gain a better understanding of its workings. Four years later, Paul began studying electrical engineering under the guidance of an outstanding So-

cratic professor who stressed independent learning and the questioning of popular thinking. After breaking for industry experience, Paul eventually graduated from the University of Iowa with his Ph.D. After completing a post-doc in computer science at Illinois Institute of Technology, Paul moved to New York to join the faculty at SUNY Maritime in the Bronx.

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## Education and Certifications

Illinois Institute of Technology	CHICAGO, IL
NIH Postdoctoral Fellow, Computer Science	2013 – 2016
SUNY Maritime	BRONX, NY
Certification For Online Teaching	2015
University of Iowa	IOWA CITY, IA
Ph.D., Electrical and Computer Engineering	2010 – 2012
University of Iowa	IOWA CITY, IA
M.S., Electrical and Computer Engineering	2006 – 2008
University of Iowa	IOWA CITY, IA
B.S.E., Electrical and Computer Engineering	2003 – 2006

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## Grants

- \$800k grant awarded by the National Institute of Justice in 2014 for the proposal titled “Comprehensive Optimization of the Use of Real-Time Video Technology in Urban Policing” (co-author).
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## Teaching Experience

State University of New York Maritime College	BRONX, NY
Assistant Professor	2012 – present
Teach machine learning, computer programming, senior design, analog and digital electronics, and basic electrical circuits. Write, conduct, and oversee laboratory experiments. Designed the engineering department’s first online course, computer programming. Adviser of 30+ students. Perform research with undergraduate students.	
East-West University	CHICAGO, IL
Adjunct Professor of Physics, Electrical Engineering	2014 – 2015
Taught calculus-based physics for engineers and physicists, non-calculus-based physics for biological sciences, and general education physics for non-science majors. Write and oversee lab experiments. Taught introductory electrical engineering classes. Ohm’s Law, Kirchoff’s Laws, induction and capacitance, transient analysis.	
Independent	CHICAGO, IL
Freelance Guitar Instructor	1999 – present
Electric guitar lessons for beginning-to-advanced guitarists. Develop personalized curricula and produce high-quality videos for students, local and online.	
University of Iowa	IOWA CITY, IA
Graduate Teaching Assistant	2006 – 2008
Taught the lab sections of an introductory circuits course for electrical and mechanical engineering students. Held and planned discussions for an advanced digital signal processing class and an advanced integrated circuits class for graduate electrical engineering students.	

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## Research Experience

Illinois Institute of Technology, Medical Imaging Research Center (MIRC)

CHICAGO, IL

**Senior Research Associate**

2013 – 2016

Partnership with the Chicago Police Department. Apply machine learning and social network techniques to large datasets in order to predict and uncover patterns in Chicago's violent crime victim and offender populations. Spatio-temporal mapping of Chicago to identify crime hot spots for more efficient use of police resources. MATLAB programming with emphasis on speed and memory efficiency.

University of Iowa

IOWA CITY, IA

**Graduate Research Assistant**

2010 – 2012

Research funded by the Department of Energy. Optimization and model selection regarding the identification of special nuclear materials. Developed algorithms that perform better than traditional model selection methods in the area of nuclear material detection. Algorithms were written in MATLAB and tested with real background radiation data and physics-based nuclear material data.

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## Publications and Presentations

- Kump, P., Alonso, D. H., Yang, Y., Candella, J., Lewin, J., Wernick, M. N. (2016) "Measurement of Repeat Effects in Chicago's Criminal Social Network", *Applied Computing and Informatics*, 10.1016/j.aci.2016.01.002.
- Bai, E., Li, K., Kump, P. (2014, June). *Variable Selection Via RIVAL*. Paper presented at MED Control Conference, Palermo, Italy.
- Kump, P., Bai, E., Chan, K., Eichinger, W. (2013) "A Robust Method For Detecting Nuclear Materials When the Underlying Model Is Inexact", *Radiation Measurements*, 59, pp.144-150.
- Kump, P., Bai, E., Chan, K., Eichinger, B. (2013) "Detection of Shielded Radionuclides from Weak and Poorly Resolved Spectra Using Group Positive RIVAL", *Radiation Measurements*, 48, pp.18-28.
- Kump, P. (2012) "Passive Detection of Radionuclides from Weak and Poorly Resolved Gamma-Ray Energy Spectra", Dissertation, University of Iowa, Iowa City.
- Kump, P., Bai, E., Chan, K., Eichinger, B. and Li, K. (2012) "Variable Selection via RIVAL (Removing Irrelevant Variables Amidst Lasso Iterations) and Its Application to Nuclear Material Detection", *Automatica*, 48, pp.2107-2115.
- Kump, P. "Passive Detection of Radionuclides from Weak and Poorly Resolved Gamma-Ray Energy Spectra", University of Iowa, Iowa City, IA, 2 July 2012, Ph.D. Thesis Defense.
- Bai, E., Chan, K., Eichinger, W., and Kump, P. (2011) "Detection of Radionuclides from Weak and Poorly Resolved Spectra Using Lasso and Subsampling Techniques", *Radiation Measurements*, 46, pp.1138-1146.
- Bai, E., Chan, K., Eichinger, W., Li, J., and Kump, P., "Physics-Based Signal Analysis For Nuclear Material Detection", University of Iowa, Iowa City, IA, 31 March 2011, Program Review.

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## Engineering Industry Experience

Sargent and Lundy, LLC

CHICAGO, IL

**Instrumentation and Controls Engineer**

2008 – 2010

Responsible engineer for Nine Mile Point's crane radio controls project. Designed and developed binary and modulating service logics for Los Alamos Nuclear Facility's CMRR project. Assisted in the development of the control philosophy for D.C. Cook's containment cooling project. Reviewed ASME, IEEE, CFRs and other codes and standards for incorporation into final designs.

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## Honors, etc.

- Open SUNY recognition for excellence in online teaching (2016).
  - Member of the MIRC Journal Club, where members present and discuss technical papers relevant to current MIRC research projects (2013-2016).
  - Dean's List every semester of graduate school (2006-2008, 2010-2012).
  - Excellence in Electrical and Computer Engineering Graduate Fellowship Award for exemplary work as a graduate student (2011).
  - Highest score on the Ph.D qualifying exam of over 20 students (2010).
  - Two-time winner of the Onsgard Physics Award offered by Joliet Junior College for excellence in undergraduate physics (2002 and 2003).
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