James Bruska

315-569-7224 | recruiting@bruskajp.anonaddy.com | bruskajp.com | github.com/bruskajp

PROFESSIONAL EXPERIENCE

Founder and Lead Software Engineer July 2023 – Present
Bruska Technologies LLC *Sacramento, CA*

- Update closed-loop iEEG brain stimulation system
- Utilize cutting-edge AI models to autonomously annotate vocal data associated with tasks
- Offer coding assistance and technical support to laboratory personnel

Software Engineer Mar 2021 – July 2023
Kahana Computational Memory Lab (University of Pennsylvania) *Philadelphia, PA*

- Design and implement a closed-loop iEEG brain stimulation system for memory improvement
- Design and implement multiple psychology virtual reality experiments
- Maintain multiple psychology software packages used for behavioral, EEG, iEEG, and single unit analysis
- Offer coding assistance and technical support to laboratory personnel
- Provide technical support to six hospital sites worldwide
- Help coordinate and administer the lab server with over 100 users, 36 compute nodes, and 400TB of storage
- Administrate more than 50 lab computers
- Analyze behavioral, EEG, and iEEG data for my own personal research

Software Engineer Jun 2018 – Mar 2021
INFICON *Syracuse, NY*

- Researched, designed, implemented, and supported a GC/MS system (HAPSITE® CDT)
- Improved kernel modules for interfacing with electrical systems on a custom operating system
- Used Yocto to create custom operating system for a GC/MS system
- Effectively interfaced between customer representatives, technical staff, service & repair team, R&D team (my team), product owners, and senior management
- Designed and implemented a GUI based binary configuration editor
- Reverse engineered acquired competitor code

Research Assistant Jul 2014 – May 2018
Clarkson University *Potsdam, NY*

- Created a novel realtime closed-loop exploit detection system using hardware performance counters
- Designed and implemented a novel hardware performance counter collection system as a Linux kernel module
- Detected OpenSSL downgrade attacks using hardware performance counters
- Created an app that displays a person's heart rate in real time using the Google Glass
- Created a novel Linux kernel scheduler using hardware performance counters

VM Maintainer and Lab Member Sep 2014 – May 2018
Clarkson Open Source Institute *Potsdam, NY*

- Helped maintain a professional server room that serviced the lab and provided an official public mirror for approximately 40 distributions and programs
- Helped maintain a computer lab with more than 20 computers
- Led, participated in, and sponsored events that occurred throughout the year
- Taught a private class on hacking to interested students

Software Engineering Intern May 2016 – August 2016
Intelligent Automation Inc. *Rome, NY*

- Worked on secure micro-kernel development
- Performed radio testing to find issues in radio transmission algorithms

Research

Publications

M. Dougherty, W. Chang, J. Rudoler, B. Katerman, D. Halpern, J. Bruska, N. Diamond, M. Kahana, "Neural correlates of memory in an immersive spatiotemporal context" [in review]

C. Woralet, J. Bruska, C. Liu, and L. Yan, "High Frequency Performance Monitoring via Architectural Event Measurement," October 2020, IISWC '20

G. Torres, Z. Yang, Z. Blasingame, J. Bruska, and C. Liu. 2019, "Detecting Non-Control-Flow Hijacking Attack Using Contextual Execution Information," June 2019, HASP '19

C. Liu, Z. Yang, Z. Blasingame, G. Torres, and J. Bruska. 2018, "Detecting Data Exploits Using Low-level Hardware Information: A Short Time Series Approach," June 2018, RESEC '18

J. Bruska, Z. Blasingame, and C.Liu, "Verification of Openssl version via hardware performance counters," April 2017, SPIE '17

Presentations

J. Bruska, R. Colyer, M. Kahana, "Easy, Closed-Loop, 2D/3D Game Design," 2023 Context and Episodic Memory Symposium (CEMS)

J. Rudoler, J. Bruska, ..., M. Kahana, "Decoding and Optimizing Episodic Memory," 2022 Context and Episodic Memory Symposium (CEMS)

M. Dougherty, ..., J. Bruska, M. Kahana, "Searching Memory in Time and Space," 2022 Cognitive Neuroscience Society (CNS)

J. Rudoler, J. Bruska, ..., M. Kahana, "Decoding and Optimizing Episodic Memory," 2022 Cognitive Neuroscience Society (CNS)

J. Bruska, C. Liu, "Multi-Exploit Detection via Hardware Performance Information," 2017 Naval Academy Science and Engineering Conference (NASEC)

J. Bruska, Z. Blasingame, C. Liu, "Verification of Openssl version via hardware performance counters," 2017 SPIE Disruptive Technologies in Sensors and Sensor Systems

J. Bruska, C. Liu, "Multi-Exploit Detection via Hardware Performance Information," 2017 Symposium on Undergraduate Research Experiences (SURE)

J. Bruska, C. Liu, "Minute motion sensing using Google Glasses," 2015 Symposium on Undergraduate Research Experiences (SURE)

Patents

Information can be provided upon request

Leadership and Teaching

Programming Mentor: Kahana Computational Memory Lab	Jun 2021 – Present
Official Intern Mentor: INFICON	Jun 2020 – Oct 2020
Alumni Mentor: Clarkson Honors Program	Oct 2018 – Oct 2019
Vice President: Clarkson University Golden Knotes (A Capella Group)	May 2016 – May 2018
Vice President: Clarkson ACM (Association for Computing Machinery)	May 2015 – May 2018
Teaching Assistant: Microprocessors	Jan 2017 – May 2017
Teaching Assistant: Introduction to Computer Science I and II	Jan 2014 – May 2015
Snowboarding Instructor: Titus Mountain Ski Center	Nov 2014 – Mar 2018

Awards, Honors, and Scholarships

Scholarships

Barry Goldwater Scholarship Honorable Mention	2017
Clarkson Honors Program Scholarship	2014 – 2018
Clarkson Merit Scholarship	2014 – 2018
RIT Computing Medal Scholarship	2014

Academic Awards and Honors

SURE Conference, Best Presentation in Computer Science and Electrical Engineering	2017
SURE Conference, Best Poster in Signal Processing	2015
Clarkson Presidential Scholar	7 semesters
Clarkson Dean's List	1 semester

Other Awards and Honors

First Place at Hack Potsdam	2017
Best Hardware Hack at Hack Upstate X	2017
Third place Northern New York Preliminary ACM ICPC Programming Contest	2017
Twelfth Place at ICCA Regionals	2017
Many Snowboarding Competitions	2014 – 2017

SKILLS AND ABILITIES

Programming Languages

Proficient: *C, C++, Python, Bash, Rust*

Used: *Java, SQL, Assembly (x86 and HCS12), MATLAB, R, VHDL, Haskell, Racket/Scheme, Prolog, HTML, CSS, JavaScript, BASIC, and Scratch*

Technical Knowledge

Tools: *Linux, Virtual Machines, Git, AutoDesk Inventor, Microsoft Windows, Microsoft Office*

Frameworks: *Android App Development, Kernel Development, OpenCV, OpenSSL, Qt*

EDUCATION

University of Pennsylvania College | *3.70/4.00* Jan 2022 – Dec 2022
Interesting Psychology and Programming Courses

Le Moyne College | *4.00/4.00* Jun 2020 – Dec 2020
Interesting Psychology Courses (ex: Positive Psychology)

Clarkson University | *3.93/4.00* Jul 2014 – May 2018
BS in Computer Engineering and Minor in Math with Honors
BS in Computer Science with Honors

CLUBS AND ACTIVITIES

Clarkson Open Source Institute	2014 – Present
Pennchants (A Capella Group)	2021 – 2023
Association for Computing Machinery Clarkson Student Chapter	2014 – 2018
Golden Knotes (A Capella Group)	2014 – 2018
UltraViolet Tones (A Capella Group)	2015 – 2018
InterVarsity Christian Fellowship Small Group	2015 – 2018
Clarkson Ski Club	2014 – 2017

COOL PROJECTS

Nano-Services: A Rust threading library that is particularly good for safe closed-loop systems
https://github.com/bruskajp/nano_services
[constant project]

Whisper-rs: A Rust interface to whisper.cpp, a cpp rewrite of the OpenAI whisper model
https://github.com/tazz4843/whisper-rs
[constant project]

Pascal-Lite Compiler: A simplified Pascal compiler that also implements function pointers
https://github.com/bruskajp/CS445-Compiler
[created in a semester on my own]

Autonomous Car: An autonomous NXP competition car that can follow a line, turn at intersections based on pole markers, find the track on its own, and follow other cars on the track
https://github.com/bruskajp/KVM-Cars
[created in a semester with a team of 6]

Data Range: A virtual reality game created from scratch (all components) that uses target shooting for points
https://github.com/hunterdquant/DataRange
[created in 24 hours with a team of 5]

Hnefatafl: An android application that allows you to play the game hnefatafl with a friend or with an AI on the phone
https://github.com/bruskajp/Hnefatafl
[created in a semester with a team of 4]

Dev Rogue: A roguelike game that operated as a part of kernel space
https://github.com/bruskajp/DevRogue
[created in 24 hours with a team of 2]