

## John Sarris Burke

25 Colborne Road Apt # 3, Brighton MA, 02135

☎ 781-856-0079 || ✉ jsburke@bu.edu || 🌐 jsburke || 📷 John Burke

Computer Engineer with skills in Computer Architecture seeking challenging positions in hardware security and high performance applications

### Education

#### **Boston University College of Engineering**, Boston, MA

Master of Engineering in Computer Engineering, September 2017 expected

GPA – 3.35/4.0

Bachelor of Science in Electrical Engineering, September 2011

GPA – 3.05/4.0

### Technical Skills

<b>Languages</b>	C, C++, Verilog, System Verilog, CUDA, Python, Perl, BlueSpec, ATS, Scala, Chisel, MATLAB, Assembly (x86, RISC-V, ARM)
<b>Software And Tools</b>	Xilinx ISE and Vivado, PyMTL, Visual Studio, Windbg, L <sup>A</sup> T <sub>E</sub> X, SPIM, Valgrind, Cadence, gdb, gtkwave, Qt, scikit-learn
<b>Additional</b>	Strong Experience with Linux and Windows, Synthesis targeting FPGAs, Machine Learning Techniques

### Work and Research Experience

#### **Charles Stark Draper Laboratory**

**Cambridge, MA, October 2017 to Present**

Embedded Hardware Security Research and Development Engineer

- ◇ Simulation, testing, and development with Draper's Inherently Secure Processor
- ◇ Introduction of open source projects including the RISC-V Rocket-chip and Chisel HDL

#### **Boston University**

**Boston, MA, May 2017 to October 2017**

Research with BU Integrated Circuits and Systems Group (ICSG)

- ◇ Mapped the RISC-V Berkely Out of Order Machine onto FPGA with the Rocket Chip Generator
- ◇ Utilized and developed skills with RISC-V cross compiler, emulators, Linux, and related tools

#### **MEDITECH**

**Framingham, MA, November 2011 to January 2017**

System Analyst

- ◇ Developed TruCode Interface, in-house portion of the Site Information Retrieval Tool, other tools
- ◇ Fixed and updated Meditech Software in C++, x86 Assembly, and Proprietary Languages

#### **Boston University**

**Boston, MA, September 2009 to May 2011**

Undergraduate Teaching Assistant

- ◇ Assisted Professor teaching MATLAB to Engineering students
- ◇ Graded exams and quizzes, managed labs, recitations, and office hours

### Relevant Projects

#### **Boston University**, Computer Architecture: Multicore Tiny RISC-V Processor

- ◇ Made a Quadcore CPU in Verilog using a restricted RISC-V ISA, private L1i caches, shared L1d
- ◇ Verified with PyMTL and by cross-compiling a parallel hybrid Merge-Quick sort written in C

#### **Boston University**, High Performance Programming: N-Body Simulation

- ◇ Designed an N-Body Gravitational simulation using the Barnes-Hut algorithm
- ◇ Multi-threaded C code with investigation of Intel Intrinsics and a simpler model in CUDA

#### **Boston University**, Machine Learning: Yelp Review Prediction

- ◇ Constructed Machine Learning systems to predict Yelp Ratings from review text
- ◇ Used scikit-learn's SVM and MLP to predict with 40 percent higher accuracy than random selection

#### **Boston University**, Senior Capstone: Magnetic Environment Sensor for the Naval Undersea Warfare Center

- ◇ Team project to create a device to sample and process magnetic fields and return frequency content
- ◇ Project started with initial design phases until a functional prototype

### Philanthropy

Served several times in Mississippi for Hurricane Katrina Relief, impoverished areas of West Virginia. Often assist at Saint Francis House in Boston.