Gera Groshev

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EDUCATION

University of California, Berkeley | B.S. EECS | Dec 2017 **Cumulative GPA:** 3.8

Cosumnes River College | A.S. Electrical/Computer Engineering/Math | May 2015

Courses

Planned Spring 2017
- **CS162:** Operating Systems and Systems Programming
- **EE123**: Digital Signal Processing

In Progress
- **CS188**: Artificial Intelligence
- **CS198**: iOS Development
- **EECS149**: Embedded Systems
- **EE120**: Signals and Systems

Completed
- **EE16A, EE16B**: Designing Information Devices and Systems I & II
- **EE198**: IEEE Micromouse Robotics
- AC & DC Circuit Analysis
- **CS61A**: Structure and Interpretation of Computer Programs
- **CS61B**: Data Structures
- **CS61C**: Machine Structures
- **CS70**: Discrete Math and Probability Theory
- Linear Algebra and Differential Equations

SKILLS & INTERESTS

Proficient
- LabVIEW, C, C++, Python, Java, MIPS Assembly, Scheme, SQL, HTML, CSS, JavaScript, Logisim
- Mac OS X and Windows

Familiar
- Swift, jQuery, Bootstrap, WordPress, OpenMP, Intel SSE Intrinsics, AutoCad, SchemeIt

Interests & Qualities
- Internet of Things, Swarm Robotics, Autonomous and Embedded Systems, Computer Vision
- Quick learner, self-motivated, problem solver, team player, leadership, management
- Bilingual: English and Russian

PROJECTS

Pacman AI
Berkeley, CA
AI Project
- Used AI techniques to allow the Pacman agent to find paths through his maze world to reach a particular location and to collect food efficiently. More AI features soon to be implemented, taking enemies into consideration.

MIPS Computer
Berkeley, CA
MIPS Pipelined CPU, Assembler, Linker
- Fully implemented a 2 stage pipelined CPU complete with ALU, Datapath, and Control for the MIPS Instruction Set Architecture using Logisim
- Designed and implemented Assembler in C and Linker in MIPS to translate assembly code to machine executable code and ran code on the implemented MIPS CPU

Bear Maps
Berkeley, CA
Map Raster and Quickest Route AI
- Used a quadtree for map rastering and used lazy loading to load high resolution map tiles in response to zoom operations
- Parsed the OSM XML copy of OpenStreetMap database and implemented AI to find shortest route

Text Editor
Berkeley, CA
Java Project
- Designed and implemented a combination of data structures for efficient text buffering, rendering, cursor movements, insertion and deletion, undo and redo operations, and scrolling
- Used JavaFX API for the GUI, positioning of text objects, and file processing

Scheme Interpreter
Berkeley, CA
Python Project
- Used Python to implement an interpreter for a functional subset of the Scheme language

SIXT33N
Berkeley, CA
Voice Controlled Robotic Vehicle
- Built a small mechatronic car capable of recognizing and reacting to voice commands
- Applied Machine Learning algorithms and Data Science techniques for speech recognition
- Designed and implemented the controller using state space and linear feedback modeling

Solar Powered Boat
Sacramento, CA
SMUD Solar Regatta
- **Awards**: Judge's Choice, Best Technical, Best Design, Most Artistic, Best Video
- Lead the electrical and controls design team and implemented the electrical circuit for the control

panel, which included a 24VDC motor, variable speed control, voltage and current meter, solar charge controller, various switches, and voltage converter for the electronics
- Designed an autonomous sun tracking device and its algorithm using the Arduino microcontroller, stepper motors, and photo resistors

Solar System Simulator
Berkeley, CA

Java Project
- Used gravitational pull of planets, physics, and Java OOP to create a visual simulator of the solar system

Solar Trash Compactor
Sacramento, CA

Automated Solar Powered Trash Compactor
- **Awards**: Best Energy, $5000 grant, 3rd Place in Engineering
- Implemented a gear reduction mechanism and locking dispenser mechanism
- Designed and implemented the complete electrical circuit which included a 3HP 12VDC motor, limit switches, lighting, custom programmed servo motors, and a PLC

Experience

Lab Assistant
UC Berkeley
Berkeley, CA
5/16 – 8/16

Data Structures (CS61B)
- Provided guidance to students taking the Data Structures course at UC Berkeley
- Helped in lab sections, office hours, and homework parties

EECS Intro Course
Cosumnes River College
Sacramento, CA
5/16 – 8/16

Created C++ and Circuits Intro Course
- Organized and wrote material and mini projects for electrical circuits and applications in module format for self-learning to prepare future SMUD Solar Regatta Competitors
- Ideas included: C++ programming for Arduino, basic circuit analysis, switches and relays, circuit design
- Composed mini projects including: Algorithm for a password controlled locking device, AC to DC power supply, stepper motor controller, double light switch, and other applications

Li Battery Undergrad Research
Tennessee Tech Univ.
Cookeville, TN
6/15 – 8/15

Lithium Sulfur Battery Research
- Worked with faculty to discover the potential of current Li-based technologies
- Formulated chemical compositions for the electrodes of Li-S batteries
- Performed cycle testing, material analysis using x-ray diffraction, assessed limitations, and reported and presented discoveries at several events

Accomplishments

SMUD Solar Regatta
- Five awards: Judge's Choice, Best Technical, Best Design, Most Artistic, Best Video

Sacramento Regional Science and Engineering Fair
- Solar Powered Trash Compactor Awards:
  Excellence in Engineering Award from PECG, SMUD Golden Trophy Senior Best Energy Award, 3rd Place in Engineering Senior Division, SMUD $5000 grant

Best Video Game
- Best rated for implementing a physics algorithm for gravity and excellent sound effects

Other Awards
- MESA Scholarship
- President's Volunteer Service Award
- Monterey Trail HS Design and Technology Academy Scholarship
- Monterey Trail HS Industrial Technology Departmental Award