Tessa Alexanian

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github: @alexanian

Engineering grad & general enthusiast in search of problems to solve, systems to model & data to parse

Skills

Data: MATLAB, R, Perl, SQL, FORTRAN
Web: HTML/CSS/LESS, jQuery, PHP
Wires: control system design, Arduino
Misc: mathematical models, image processing, illustration, bioinformatics, small carpentry

Education

Bachelor of Applied Science
Systems Design Engineering
University of Waterloo | Waterloo ON

Convocation October 2015

Courses: control systems, mathematical biology, bioinformatics, pattern recognition, engineering graphics, analog & digital circuits, signal processing, MEMs fabrication

Awards: NSERC Undergraduate Student Research Award, 2012 & 2015; Stanford Fleming Award for Technical Writing, 2012 & 2014; Stanford Fleming Exchange Scholarship, 2013; President's International Experience Award, 2013

Spent half of 2013 on exchange to Pontificia Universidad Catlólica in Santiago, Chile.

Coursera Independent Online Study

Network Analysis in Systems Biology, R Programming, Intro to Systems Biology

Involvements

Past Year

- Attended the Kitchener-Waterloo PCH Hardware Hackathon, pitched the idea of & formed a team to build a tangible feedback device
- Mentored new engineering students through programs such as Engineering Ambassadors and First Year Mentorship
- Volunteered with KW Food Not Bombs

Previously

- Part of Grounding Summer Workshop Series, a collective space for young artists to develop projects in Summer 2014; workshopped an illustration zine
- Sailed the great lakes aboard Toronto Brigantine tall ships, 2008-2010
- Volunteered in a lab at the Institute for Quantum Computing, 2010-2012

Experience

Bioinformatics Assistant *January – June 2013 & May – August 2014*
Princess Margaret Genomics Centre | Toronto ON

- Developed a pipeline for processing & analysis of next-generation sequencing projects (including whole-genome, exome, xenograft and targeted resequencing data)
- Benchmarked bioinformatics tools (e.g. BWA, GATK, samtools) to determine best practices analysis
- Examined mouse and human tissue interactions using microarray and sequence data

Image Processing Research Assistant *May – August 2012*
Vision and Image Processing Lab | University of Waterloo

- Primary developer on a research project investigating automatic annotation of low-resolution video of horse races
- Implemented various object detection algorithms in MATLAB using techniques such as feature point clustering, edge and line detection, optical flow segmentation, GLCM texture analysis, random forest classification & linear SVM

Data Assimilation & Modelling Co-op *September - December 2011*
Canadian Ice Service, Environment Canada | Ottawa ON

- Designed a texture analysis algorithm to help classify radar images of sea ice; implemented it using Fortran and C++
- Assimilated new kinds of data into a suite of linux scripts used by meteorologists to predict future ice conditions
- Maintained a database used for a meteorological linear regression model, improving its UI with new queries and VBA scripts and writing a comprehensive user manual

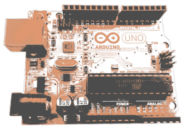
Full experience, including sojourns into teaching assistantships, IT, community theatre & sailing tall ships, available upon request.

Projects

Waterloo iGEM Student Synthetic Biology Team

- Designing open source microbes to address problems like antibiotic resistance
- Co-lead of the 2015 mathematical modelling team; member of the 2014 mathematical modelling team, which won best undergradute model at the international iGEM competition

re[Array] 4th Year Engineering Design Project



- Building a control system for a programmable pin surface to be used in manufacturing
- Collaborating with Maieutic Enterprises, a start-up located in the Velocity Foundry

Embla 3rd Year Engineering Design Project

- Designed a magnetically-guided touchscreen interface for users with hand tremors
- Project was a finalist in the Velocity $1k Fund & OCE Elevator Pitch competitions and voted best overall in the 3B class