

CURRICULUM VITAE

Yulia Newton

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EDUCATION

- 2013 – Present** **Ph.D. candidate, Bioinformatics and Biomolecular Engineering with Designated Emphasis in Statistics**
University of California Santa Cruz, Santa Cruz, California
- 2011 – 2013** **M.S. Bioinformatics and Biomolecular Engineering**
University of California Santa Cruz, Santa Cruz, California
- 2008 – 2011** **B.S. Computer Science with minor in Mathematics, cum laude**
San José State University, San José, California

SKILLS

Methodologies: Machine learning, pattern recognition, data mining, data science, algorithm design, Bayesian and classical statistical inference, statistical and mathematical modeling, graphical models, big data, regression analysis, classification, clustering, recommender systems, dimensionality reduction, regularizer design, MapReduce, software engineering

Programming: C, Java, R, Matlab, Python, Perl, JSP, Scheme, Prolog, C#, GO, XML, XSLT, Java Servlets, ASP. Net, SQL, PL-SQL, T-SQL, Javascript, HTML, Unix Shell Script, Visual Basic, NetLogo, InstallShield Pro, Wise

Database Servers: Oracle, SqlServer, MySQL, DB2, MS Access

Operating Systems: Unix, Windows, Mac OS

Other: Crystal Reports/Business Objects, MS VSS, Tortoise SVN, UML

PROFESSIONAL EXPERIENCE

Sep 2013 – Present **Graduate researcher, Ph.D. candidate, Bioinformatics and Biomolecular Engineering with Designated Emphasis in Statistics**
University of California Santa Cruz, Santa Cruz, California

Sep 2011 – Aug 2013 **Graduate researcher, M.S. Bioinformatics and Biomolecular Engineering**
University of California Santa Cruz, Santa Cruz, California

Sep 2008 – Jun 2011 **Student, B.S. Computer Science with minor in Mathematics**
San José State University, San José, California

Apr 2008 – Sep 2008 **Software Engineer**
Xetus Corporation, Mountain View, CA

Developed white box and unit test scripts using Java and Unix shell. Responsible for

back-end relational database design for MySQL databases. Developed back-end database scripts using SQL.

Jan 2006 – Feb 2008 **Quality Assurance Manager**

RentOneOnline, Scotts Valley, CA

Responsible for all aspects of the software Quality Assurance process. Came into setting with no QA department in place with an objective to build-up from scratch, expand in manpower, and run the department. Performed entire spectrum of QA related hands-on tasks as well as department and project management responsibilities.

Jun 2003 – Dec 2005 **Product Development and QA Manager**

Oct 2002 – Jun 2003 **Quality Assurance Manager**

May 2000 – Oct 2002 **Senior Quality Assurance Engineer**

Mediware Corporation, Scotts Valley, CA

Came into the setting with no QA department in place. Was responsible for developing and implementing all QA related procedures, policies, and processes. Expanded the department up to four engineers, at which point was promoted to the management position to oversee it. Continued to perform hands-on as well as all department management responsibilities. Was later promoted to run the entire product development department, which included Software Engineering, QA, and Customer Service and Implementations divisions.

Jun 1999 – Nov 1999 **Quality Assurance Engineer**

Oceana Corporation, Redwood City, CA

Acceptance, functional, regression, stress, Y2K compliance, multi-user, Ad Hoc, and security software testing of company products.

RESEARCH EXPERIENCE

Oct 2013 – Present: **Identification of molecular subtypes in prostate cancer. Building models predictive of patient outcome and drug response.**

Department of Biomolecular Engineering, UC Santa Cruz (Ph.D. Thesis research)

June 2013 – Present: **Discovery of cross-cancer (12 cancer types) molecular subtypes and clusters based on heterogeneous genomic data.**

Manuscript in progress

Department of Biomolecular Engineering, UC Santa Cruz (Ph.D. Thesis research)

Sep 2012 – Dec 2012: **Building a classifier of Chronic Obstructive Pulmonary Disease subtypes based on gene expression microarray data.**

Department of Computer Science, UC Santa Cruz (Term Project)

June 2012 – Present: **Computational prediction of drug treatments in cancer based on large-scale heterogeneous genomic signatures in pathway space. Building models predicting drug response in cancer.**

Department of Biomolecular Engineering, UC Santa Cruz (Ph.D. Thesis research)

Apr 2012 – June 2012: **Classification and pattern analysis of human centromeric sequences.** In collaboration with a colleague developed a method for identifying those

centromeric sequence kmers that are the most accurate predictors of an individual's population group based on their genomic data.

Manuscript in review "Centromere reference models for human chromosomes X and Y satellite arrays", Miga et al.

Department of Biomolecular Engineering, UC Santa Cruz (Rotation Project)

Jan 2012 – Mar 2012: **Discovery of master regulators in basal vs. luminal breast cancer using pathway network-based analysis.**

Poster presentation at the refereed symposium ISMB

Department of Biomolecular Engineering, UC Santa Cruz (Rotation Project)

Sep 2011 – Dec 2011: **Finding evidence of biased gene conversion in the 1000 genomes trio data.**

Poster presentation at the refereed symposium BCATS

Department of Biomolecular Engineering, UC Santa Cruz (Rotation Project)

Feb 2011 – May 2011: **Implemented short-read genome assembler using De Bruijn graphs.**

Department of Computer Science, San José State University (Term Project)

Feb 2011 – May 2011: **Statistical analysis and clustering of microarray gene expression data for patients affected by Muscular Dystrophy.**

Department of Computer Science, San José State University (Term Project)

Aug 2010 – Dec 2010: **Prokaryotic gene predictor using Hidden Markov Models**

Department of Computer Science, San José State University (Term Project)

Sep 2010: **Global and local protein sequence aligner for transmembrane proteins**

Department of Computer Science, San José State University (Assignment Project)

Aug 2010 – Jan 2011: **Building and visualizing drug-protein interaction networks for predicting previously unknown drug interactions and side effects.**

Poster presentation at the refereed symposium CSUPERB

Department of Computer Science, San José State University (Independent Study Project)

PUBLICATIONS, CONFERENCE AND REFEREED POSTER PRESENTATIONS

- **"Centromere reference models for human chromosomes X and Y satellite arrays"**, Miga et al., 2013
- **"Discovery of master regulators in basal breast cancer"** poster presentation at the 20th International Conference on Intelligent Systems for Molecular Biology (**ISMB**), Jul 2012
- **"Evidence of biased gene conversion in 1000 genomes trio data"** poster presentation at the Biomedical Computation at Stanford conference (**CSUPERB**), Nov 2011
- **"Building and visualizing compound-target interaction networks"** poster

presentation at the refereed symposium The California State University Program for Education and Research in Biotechnology (BCATS), Jan 2011

TEACHING EXPERIENCE

Guest Instructor – Lead two sessions of *Learning Evolution Using Phylogenetic Analysis* unit to high school AP Biology students at Pacific Collegiate School, Santa Cruz, CA, January 2012 and February 2013. Was responsible for single handedly developing the unit curriculum, student worksheet, teacher's guide, and in-class power point presentation.

Guest Instructor – Lead a 6th grade science class in a hands-on learning experience on how to extract DNA from strawberries, New Brighton Middle School, Capitola, CA, May 2012

Workshop Instructor – Lead three *Secret Life of Strawberries* workshops on extracting DNA from strawberries for middle school aged children at *Science Alive!* event, Gavilan College, Gilroy, CA, February 2012 and February 2013

Science fair judge – Judged science and engineering fair for middle school and high school age children, Pacific Collegiate School, Santa Cruz, CA, February 2012

Guest Instructor – Taught *Genes and Diseases* workshop to high school AP Biology students at Pacific Collegiate School, Santa Cruz, CA, January 2012

Grader – Advanced Java Programming and Data Structures, San Jose State University, Spring 2009

PROFESSIONAL ACTIVITIES AND MEMBERSHIPS

Volunteer abstract reviewer for ISCB Student Council Symposium 2012 (April 2012)

Volunteer, 9th Annual International Conference on Computational Systems Bioinformatics at Stanford, CA (Aug 2010)

FELLOWSHIPS AND AWARDS

Spring 2012 – awarded recognition of **exemplary academic achievement** by the Dean of College of Science at San Jose State University for the academic year 2010-2011

Spring 2011 – awarded recognition of **exemplary academic achievement** by the Dean of College of Science at San Jose State University for the academic year 2009-2010

Summer 2010 – was one of only ten students selected from the Computer Science and Computer Engineering departments to spend five weeks at **The School of Business and Engineering Vaud** (HEIG-VD) in Yverdon-les-Bains, Switzerland, studying various computational topics

REFERENCES

References are available upon request