Parth Patel

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EDUCATION

08/2013-present
Ph.D. candidate & Graduate fellow, Bioinformatics and Systems Biology (GPA- 3.83/4.0)
University of Delaware
Newark, DE
Interests: Bioinformatics, Machine Learning, Big data analytics, Computational Biology, and Statistics

08/2011-08/2013
M.S., Computer Science (GPA-4.0/4.0)
Delaware State University
Dover, DE
Specialization: Computational Intelligence and Bioinformatics
Dissertation: Hybridization of Multi-Objective Evolutionary Algorithms and Fuzzy Control for Automated Construction, Tuning, and Analysis of Neuronal Models

08/2007-05/2011
B.S., Computer Science (GPA-4.0/4.0)
Delaware State University
Dover, DE

ADDITIONAL EDUCATION & CERTIFICATES

01/2007-05/2007
English as a Second Language (Final Grade: A+)
Delaware Technical Community College
Wilmington, DE

05/2006 - 08/2006
Certified in Microsoft Office Software
Ahmedabad, Gujarat, India

PROFESSIONAL EXPERIENCE

University of Delaware — Newark, Delaware

08/2013-present
Graduate Research Assistant, The Meyers Laboratory

- Conducting research on:
- *De novo* prediction of Phased siRNAs (phasiRNAs) generating loci using Machine Learning in the grasses like maize and rice.
- Utilized Hidden Markov Model in sequenced based

characterization of phasiRNAs.
- Developed miTRATA: a web-based tool for microRNA Truncation and Tailing Analysis.
- Developed several pipelines, tools, and implemented several machine learning heuristics for study-specific analyses and visualization of next generation sequencing data.
- Proficient in Python, Java, C/C++, R, MATLAB, Perl and Linux.
- Experienced in mySQL DB development, design, maintenance for high-throughput data.

Delaware State University

Dover, Delaware

08/2011-
08/2013

Graduate Research Assistant, Computer and Information Sciences Department

- Helped edit a formal proposal for the funded research project titled "NeRvolver: A computational intelligence-based system for automated construction, tuning, and analysis of neuronal models."
- Designed and implemented several computational intelligence based heuristics for the aforementioned project.
- Interpreted results, prepared reports, posters, and presentations, as well as abstracts for national and international conferences.

08/2011-
08/2013

Teaching Assistant, Computer and Information Sciences Department

- Helped redesign and taught an undergraduate-level course "Applying Computers."
- The developed course materials included: lectures, class handouts, in-class exercises, labs, and homework assignments.

08/2011-
08/2013

Member, Computational Intelligence and Bio(logical)informatics Lab (CIBiL)

- Conducted research on:

- Hybridization of Multi-Objective Evolutionary Algorithms and Fuzzy Control for automated construction, tuning, and analysis of neuronal models.
- Computational intelligence approach to evaluation of membrane conductance interactions underlying persistent spiking, the f-I curve, and adaptive properties of medial entorhinal cortex neurons (collaboration with the Center for Memory and Brain, Boston University, Boston, MA).

- Delivered seminars on various topics including: Fuzzy Logic, Fuzzy Control Systems, Evolutionary Algorithms, Computational Neuroscience, Electrical properties of

Neurons, etc.
- Delivered journal club presentations.

02/2008 – 05/2011

Tutor, Computer and Information Sciences Department

- Provided homework assistance to underclassmen.
- Explained fundamental concepts to students in computer science.
- Guided students and helped them to focus on their studies.
- Provided teaching techniques to help them to solve computer science related problems.
- Facilitated tutorial sessions with individual students and small groups.

Monsanto Company St. Louis, Missouri

06/2010 – 12/2010

Application Developer, Enterprise Application Services Department

- Supported technology solutions for the Monsanto US Commercial organization.
- Supported web-based applications, such as SharePoint and Domino, used by Monsanto's business partners and customers throughout the U.S.
- Primary responsibilities: development, unit testing, and acceptance testing of software components; communication skills for daily, direct interaction with technical leads, business analysts, software testers, architecture team members and other programming staff.
- Secondary responsibilities: participating in planning meetings, design reviews, code reviews, and other project-related meetings.

Prayosha Institute Ahmedabad, Gujarat, India

06/2006 – 11/2006

Tutor, Physics Department

- Taught high school students fundamental concepts in physics.
- Aided students in solving various physics problems.
- Prepared and presented workshops and projects.
- Taught students appropriate study habits and how to prepare for final exams.

REFEREED PUBLICATIONS

- Patel P., Ramachandruni D., Kakrana A., Nakano M., Meyers B.,(2015) “miTRATA: a web-based tool for microRNA Truncation and Tailing Analysis”, Bioinformatics 10.1093/bioinformatics/btv583s.

- Kakrana A., Hammond R., Patel P., Nakano, M., Meyers B.,(2014) “sPARTA: a parallelized pipeline for integrated analysis of plant miRNA and cleaved mRNA data sets, including new miRNA target-identification software”, *Nucleic Acids Res. 43, e139*.

- Patel P., Johnson-Gray M., Forren E., Malik A, Smolinski T.G.,“Multi-Objective “Hybridization of multi-objective evolutionary algorithms and fuzzy control for automated construction, tuning, and analysis of neuronal models [abstract],” *BMC Neuroscience* 2013, 14(Suppl 1):P369

- Forren E., Johnson-Gray M., Patel P., and Smolinski T.G., “NeRvolver: a computational intelligence-based system for automated construction, tuning, and analysis of neuronal models [abstract],” BMC Neuroscience 2012, 13(Suppl 1):P36, 2012.

POSTER PRESENTATIONS

07/2012 **Organization for Computational Neuroscience (OCNS)** Atlanta , Georgia

- **Title:** NeRvolver: A computational intelligence-based system for automated construction, tuning, and analysis of neuronal models.

10/2012 **Society for Neuroscience (SFN)** New Orleans, Louisiana

- **Title:** Computational intelligence approach to evaluation of membrane conductance interactions underlying persistent spiking the f-I curve, and adaptive properties of medial Entorhinal cortex neurons.

11/2012 **5th annual Neuroscience Poster Symposium** Newark, Delaware

- **Title:** NeRvolver: A computational intelligence-based system for automated construction, tuning, and analysis of neuronal models.

03/2013 **3rd annual DENIN-EPSCoR Research Symposium** Newark, Delaware

- **Title:** NeRvolver: Multi-Objective Evolutionary Algorithms and Fuzzy Logic-based System for Automated Construction, Tuning, and Analysis of Neuronal Models.

05/2013 **2nd annual Delaware SFN Research Symposium** Wilmington, Delaware

- **Title:** NeRvolver: Multi-Objective Evolutionary Algorithms and Fuzzy Logic-based System for Automated Construction, Tuning, and Analysis of Neuronal Models.

07/2013 **Organization for Computational Neuroscience (OCNS)** Paris , France

- **Title:** Hybridization of multi-objective evolutionary algorithms and fuzzy control for automated construction, tuning, and analysis of neuronal models.

04/2014 **18th Annual International Conference on Research in Computational Molecular Biology**
Pittsburgh, Pennsylvania

- **Title:** MASSIVELY PARALLEL PARE PREDICTION TOOL (MPPP): High-performance identification of plant sRNA targets at genome level.

12/2014 **CIS Showcase Day, University of Delaware** Newark, Delaware

- **Title:** Prediction of PhasiRNAs using Machine Learning.

11/2015 **8th Annual RECOMB/ISCB Conference on Regulatory and Systems Genomics**
Philadelphia, Pennsylvania

- **Title:** Characterization of phased, secondary, small interfering RNAs (phasiRNAs) using Machine Learning.

01/2016 **The Plant and Animal Genome XXIV Conference** San Diego, California

- **Title:** Inferring characteristics of reproductive phased, secondary, small interfering RNAs (phasiRNAs) in grasses using Machine Learning.

06/2016 **Donald Danforth Plant Science Center Annual Science Retreat 2016** Potosi, Missouri

- **Title:** Inferring characteristics of reproductive phased, secondary, small interfering RNAs (phasiRNAs) in grasses using Machine Learning.

HONORS & AWARDS

- Awarded University Graduate Fellow Award ($18,000 stipend and 100% tuition scholarship from September,2016 to May,2017)
- Won ISCB travel award ($500) to attend RECOMB 2014
- 1st Place for poster at 5th annual Neuroscience Poster Symposium in Newark, Delaware (11/2012).
- Presidents List 4.0/4.0 Cumulative GPA (2007-2011).
- Institutional Honors: Summa Cum Laude (2011).
- Department Scholar 2009-2010 & 2010-2011.
- Scholar of the Week 2008 (National Society of Collegiate Scholars).

PROFESSIONAL MEMBERSHIPS

- IEEE
- ISCB
- Organization for Computational Neurosciences (OCNS).
- National Society of Collegiate Scholars (NSCS).

VOLUNTEERING & OTHER ACTIVITIES

- Computer Science Club Member (2007-present).
- Volunteered in Delaware Brain Bee, Delaware State University, Dover, Delaware.
- Volunteered as a referee in First Lego League, Delaware State University, Dover, Delaware.
- Volunteered in William C. Jason Library, Delaware State University, Dover, Delaware.
- Volunteered in mentoring freshmen, Delaware State University, Dover, Delaware.
- Volunteered in Major Fair (Career Services), Delaware State University, Dover, Delaware.
- Volunteered in Career Fair (Career Services), Delaware State University, Dover, Delaware.

REFERENCES

- Dr. Blake Meyers
  Professor, Division of Plant Sciences, University of Missouri
  Donald Danforth Plant Science Center
  975 N. Warson Rd., Room 384
  St. Louis, MO 63132
  Phone: (314) 587-1422
  Email: bmeyers@danforthcenter.org
  (Graduate Advisor)

- Dr. Cathy Wu
  Edward G. Jefferson Chair of Bioinformatics & Computational Biology
  Director, Center for Bioinformatics & Computational Biology (CBCB)
  Director, Protein Information Resource (PIR)
  Professor, Computer & Information Sciences
  Professor, Biological Sciences
  University of Delaware
  15 Innovation Way
  Newark, DE 19711
  Phone: (302) 831-8869
  Email: wuc@dbi.udel.edu

- Dr. Hagit Shatkay
  Associate Professor, Dept. of Computer and Information Sciences
  University of Delaware
  Newark, DE 19716
  Phone: (302) 831-8622
  Email: shatkay@udel.edu
  (Project Advisor)

- Dr. Tomasz G. Smolinski
  Assistant Professor, Computer and Information Sciences Department
  Science Center North (Original), Room 344
  1200 N. Dupont Highway
  Delaware State University
  Dover, Delaware 19901
  Phone: (302) 857-7951
  Email: tsmolinski@desu.edu
  (Former Graduate Advisor)

- Dr. Gary F. Holness
  Director, Graduate Program, Computer and Information Sciences Department
  Science Center North (Original), Room 342
  1200 N. Dupont Highway
  Delaware State University
  Dover, Delaware 19901
  Phone: (302) 857-7932
  Email: gholness@desu.edu
  (Former Teacher)