Shilpa Nadimpalli Kobren

□ +1 978-407-8042 • ☑ snadimpa@princeton.edu • • http://shilpanadimpalli.com

Currently seeking a position as a postdoctoral researcher in the New York City or Boston areas.

Education

- exp. 2017 **Ph.D. in Computer Science** Princeton University
 - Thesis: Detecting and Analyzing Variation in Protein Interaction Interfaces

Advisor: Mona Singh

- 2013 M.Sc. in Computer Science Princeton University
- 2011 **B.Sc. in Biology & Computer Science**, summa cum laude Tufts University

Thesis, Awarded Highest Honors: Correcting Protein Multiple Structural Alignments by Sequence Peeking Advisor: Lenore Cowen

Awards & Honors

- 08/2015 **Siebel Scholar, Class of 2016** awarded annually for academic excellence and demonstrated leadership to 93 top students from the world's leading graduate schools
- 09/2011–09/2015 NSF Graduate Research Fellowship for graduate study in STEM disciplines
- 09/2011–09/2015 Princeton Gordon Wu Fellowship for engineering graduate study
 - 05/2011 Tufts James Schmolze Award for top undergraduate achievement in computer science
 - 05/2010 Google Anita Borg Memorial Scholarship for women in computer science
- 08/2007–05/2011 Tufts Neubauer Scholarship for aptitude in research; grants to fully cover all four years of undergraduate student loans (1 in 10 of \sim 1500)
 - 04/2011 Tufts Class of 1882 Prize Scholarship for intellectual leadership (1 in 4 of ~5000)
 - 04/2010 Tufts Audrey Butvay Gruss Award for scientific achievement (1 in 4 of ~5000)
- 06/2009–10/2009 CRA-W/CDC Distributed Research Experiences for Undergraduates Fellowship
- 09/2008-05/2009 CRA-W Multidisciplinary Research Opportunities for Women Fellowship
- 06/2008–09/2008 NSF/NIH Southern California Bioinformatics Summer Institute Fellowship
 - 05/2006 Massachusetts State Science Fair, 1st Place Award

Publications

- **SN Kobren**, M Singh. (2017). "Structure-informed approach to discovering perturbed interaction interfaces in cancer." *Manuscript in preparation*.
 - **SN Kobren**, M Singh. (2017). "Structure-based assessment of domain binding potential." *Manuscript in preparation*.
- **S Nadimpalli**, AV Persikov, M Singh. (2015). "Pervasive variation of transcription factor orthologs contributes to regulatory network divergence." *PLoS Genetics*. 11: e1005011.
- N Daniels, **S Nadimpalli**, L Cowen. (2012). "Formatt: Correcting protein structural alignments by incorporating sequence alignment." *BMC Bioinformatics*. 13: 259–266
- **S Nadimpalli***, N Daniels*, L Cowen. (2011). "Formatt: Correcting protein structural alignments by sequence peeking." *Proceedings of the 2011 ACM Conference on Bioinformatics, Computational Biology, and Biomedicine*. 2: 315–319.
- J Rieffel, F Sauders, **S Nadimpalli**, H Zhou, S Hassoun, J Rife, B Trimmer. (2009). "Evolving soft robotic locomotion in PhysX." *Proceedings of the 2009 ACM Conference on Genetic and Evolutionary Computation*. 2: 315–319.

Last updated: 17-Apr-2017

Research & Work Experience

03/2012–Present Graduate Research Assistant, Princeton University • Princeton, NJ

"Detecting and Analyzing Variation in Protein Interaction Interfaces"

Investigating the evolution, natural variation, and disease-related mutation of gene regulatory networks through analysis of protein interaction interfaces under Prof. Mona Singh

Undergraduate Research Assistant, Tufts University • Medford, MA

01/2010-05/2011 "Formatt: Correcting Protein Multiple Structural Alignments by Sequence Peeking"

Improved the Matt protein structural aligner by incorporating a sequence alignment correction step and

validating using objective measures under Prof. Lenore Cowen

09/2008-05/2009 "Modeling the Neuro-Mechanical Control of a Soft-Tissue Organism"

Evolved a solution representing the firing of neurons for muscle contraction using genetic algorithms to

successfully elicit motion in a SoftBot under Prof. Soha Hassoun

06/2009–10/2009 Summer Intern, Bioinformatics Dept, Virginia Tech • Blacksburg, VA

"Cataloging Animal Retrocopies for Retrotransposon Model"

Developed a genome annotation independent algorithm to identify and classify retrocopies and chimeric

genes given a transcriptome under Prof. Liqing Zhang

06/2008–09/2008 Summer Intern, Biochemistry Dept, University of California, Los Angeles • Westwood, CA

"Discovery of Novel Metabolic Types of Bacterial Microcompartments"

Implemented a pipeline to analyze oceanic metagenomic sequencing data for bacterial microcompartment

(BMC) shell proteins to identify potentially novel metabolic BMC types under Prof. Todd Yeates

05/2007-08/2007 Summer Intern, Preclinical Dept, Shire Pharmaceuticals • Cambridge & Lexington, MA

Set up a secure database containing clinical and research reports for drugs in production or under testing.

06/2006–09/2006 Summer Intern, Microbiology Dept, Univ. of Massachusetts Medical School • Worcester, MA

"Identification of Genes Involved in Expansion of Chromosomal Repeat in E. Coli"

Developed a series of knockout bacterial strains and tested viability of bacteria and amplification of a

specific chromosomal repeat under Prof. Anthony Poteete

Teaching & Mentoring Experience

01/2016-02/2017 Mentor for First-Year Graduate Students, Princeton University • Princeton, NJ

Spring 2016 Quantitative & Computational Biology graduate student project: "Identifying functional

protein domain positions using population variation data"

Fall 2016 Computer Science graduate student project: "Framework for structural integration of

nonsynonymous mutations in protein binding pockets"

06/2013–07/2013 Mentor for Undergraduate Students, Princeton University • Princeton, NJ

Summer 2013 Co-advised three undergraduates on a summer project through the Summer Programming

Experiences program to build a secure voting mobile application

09/2012–05/2013 Assistant Instructor, Princeton University • Princeton, NJ

Fall 2012 & Spring 2013 Taught precepts twice weekly for COS126: General Computer Science, held

office hours (\sim 10 hours/week), graded assignments and proctored midterm and final exams.

*Top rated (4.5/5 on average) by students for all precepts taught over both semesters.

09/2009–05/2010 **Teaching Assistant**, Tufts University • Medford, MA

Fall 2009 & Spring 2010 Attended lectures, assisted in labs, held office hours (~10-18 hours/week) and

graded assignments for two courses CS40: Machine Structure and Assembly Language Programming and

CS80: Programming Languages.

02/2009–06/2009 High School Bioinformatics Instructor, Somerville High School • Somerville, MA

Analyzed *Illumina*-sequenced soil metagenomic data to discover new soil microbes, and led four spring seminars for Somerville High School students about gene sequencing, alignment algorithms, and BLAST.

Last updated: 17-Apr-2017

Project funded via a Tufts University Chemistry Department HHMI ARRAYS grant.

Presentations

_		
п	۲⊸.I	ll/c
	1	IK S

- 01/06/2017 Structure-informed approach to discovering perturbed interaction interfaces in cancer, *Princeton Area Alumni Association First Friday Series, Princeton, NJ*
- 01/06/2016 Pervasive variation of TF orthologs contributes to regulatory network divergence, Icahn Institute Think & Drink Symposium, Princeton, NJ
- 04/02/2011 Formatt: Correcting Protein Structural Alignments, Tufts 13th Annual Undergraduate Research Symposium, Medford, MA

Posters

- 11/15/2015 Pervasive variation of transcription factor orthologs contributes to regulatory network divergence, RECOMB/ISCB Conference on Regulatory and Systems Genomics, Philadelphia, PA
- 03/20/2014 Pervasive binding specificity variation of Cys₂-His₂ zinc finger orthologs suggests trans mutations as major drivers of regulatory network divergence, Systems Biology Meeting: Global Regulation of Gene Expression, Cold Spring Harbor, NY
- 04/09/2011 Formatt: Correcting protein structural alignments by sequence peeking, 3rd Annual New England Undergraduate Computing Symposium, Boston, MA
- 04/17/2010 Improving Matt Structural Alignments by Considering Sequence Homology, 2rd Annual New England Undergraduate Computing Symposium, Boston, MA
- 10/09/2009 Cataloging Animal Retrocopies: An Annotation-Independent Methodology, Midwest Women in Computing Conference, Chicago, IL

Panels

- 10/02/2015 Questions about Going to Graduate School in Computer Science, Department of Computer Science at Princeton University, Princeton, NJ
- 03/28/2013 Getting More Out of Office Hours, Princeton University McGraw Teaching Center, Princeton, NJ
- 04/09/2011 Graduate School Application Process and Visit Experience, 3rd Annual New England Undergraduate Computing Symposium, Boston, MA

Service & Outreach

- 08/2017 **ACM BCB'17 Student Activity Co-Chair**, ACM Conference on Bioinformatics, Computational Biology, and Biomedicine, Boston, Massachusetts
- 05/2017 **RECOMB 2017 Sub-reviewer for submitted papers**, 21st Annual International Conference on Research in Computational Molecular Biology, Hong Kong
- 07/2010, 07/2015 **ISMB 2010 & 2015 Student Volunteer**, International Conference on Intelligent Systems for Molecular Biology, Boston, Massachusetts
- 05/2012–02/2015 Princeton Graduate Student Government, Computer Science Representative, Events Board Member
- 09/2011-Present Princeton Graduate Women in Science and Engineering, Mentoring Program Participant
- 08/2011-Present Tufts Alumni Admissions Program, Applicant Interviewer
- 07/2012-05/2014 Princeton Jewish Graduate Students and Young Professionals, President, Coordinator
- 10/2009-05/2011 Tufts Computer Science Reading Group, Member & Coordinator
- 09/2008-05/2011 Tufts Admissions Office, April Open House Host, Voices Host, Speaker at Engineering Open House
- 09/2007-05/2011 Tufts Association for Computing Machinery, Women, Mentor & Outreach Contact

Last updated: 17-Apr-2017