

Preetha Chatterjee

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Resumé

Education

- 2016–Present **PhD. in Computer & Information Sciences**, *University of Delaware*.
- 2014–2016 **MS in Computer & Information Sciences**, *University of Delaware*, GPA: 3.8/4.0 .
- Graduate Courses Advanced Software Engineering, Introduction to Natural Language Processing, Machine Learning, Introduction to Artificial Intelligence, Empirical Methods for Computer Science, Reproducibility in Software Systems Research, Database Systems, Computer Networks, Algorithm design and Analysis, Computational Biomedicine, Communication Skills for CS Researchers
- 2004–2008 **B.Tech in Information Technology**, *B.P.Poddar Institute of Management & Technology (West Bengal University of Technology)*, Kolkata, GPA: 8.32/10.

Computational skills

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|------------------------------|--|--------------|--|
| Programming Languages | Python, Java/J2EE, Perl, C, LISP, HTML, JavaScript, Quorum | Tools | Natural Language Toolkit (NLTK), Weka, ANTLR (ANother Tool for Language Recognition), SVM ^{light} , HP-QC, Clear Case, Clear Quest, Souce-Tree, Bitbucket, Github, Bugzilla, Test Link, JIRA, TWiki |
| Operating Systems | MacOS, UNIX /Linux, Windows | | |
| Databases | MySQL | | |

Research Experience

- Sept 2016–Present **Graduate Research Assistant**, *Department of Computer and Information Sciences*, University of Delaware.
- Improving Software Engineers' Tools through Mining and Text Analysis
- Developed a novel approach to identify and locate code examples and the natural language text describing the code segments in research articles. This project also involved designing a tool that takes different kinds of research articles as input and outputs an XML-based representation with markups to associate identified code segments with their specific descriptions.
 - Conducted an exploratory study to find different types of information embedded in a variety of software-related documents including blog posts, API documentation, code reviews, public chats, etc., and gain insight into the potential value and difficulty of mining the natural language text associated with the code snippets in these documents.
 - PhD Prelims Project:** Explored the generality of an approach to automatically identify the higher level abstraction of the action being performed by a particular loop structure in Quorum programming language based on their structure, data flow and linguistic characteristics. This project involved mining loop characteristics of a given loop structure over the repository of the Quorum language source code, map it to a Java-based loop action identification model, and thus identify the action performed by the specified loop.

Teaching Experience

- Sept, 2014–May, 2016 **Graduate Teaching Assistant**, *Department of Computer and Information Sciences*, University of Delaware.
- Guide and provide assistance during laboratory/office hours to students. Explain concepts, grade assignments and projects, and give lectures as per requirement in the following courses:
Java Programming (Course code: CISC181), **Python Programming** (Course Code: CISC106) and **Intro to Computer Science with Web Applications** (Course Code: CISC 103)

Work Experience

- 2013–2014 **Quality Analyst**, *Integral India Software Development*, Bangalore, India, Domain: Foreign Exchange Trading.
- Performed **Web-based Testing, Functional and Regression Testing** of in-house Foreign Exchange Trading tool, and ensured adherence to quality norms throughout the testing process.
 - Performed debugging of multiple logs of application workflows for failed scenarios.
 - Contributed in building the in-house **automation test framework** using Groovy.
- 2012–2013 **Software Engineer**, *Theorem India Private Limited*, Bangalore, India, Domain: Computational Advertising.
- Single point of contact for the testing team of BRT (Business Response Team) which handled bug/enhancement requests from production. Analyzed **software requirement specifications**, prepared **test plans**, test scenarios (using TestLink), created and executed **test cases**, **logged** and tracked **defects** (in **JIRA** and **Bugzilla**).
 - Performed **White-box** (code-level) testing, **Black-Box (Functional) & Regression Testing** for the user interface to validate functionalities of different components, created & executed **Perl/Shell** scripts, ran MySQL queries on the database, and **fixed bugs/defects** in the source code (in JAVA).
 - Performed **Scoping** and estimated the timeline of the project, considering the efforts and number of resources available for a particular production release.

- 2009-2012 **Project Engineer**, *Wipro Technologies, Ltd*, Bangalore, India,
Domain: Online stock/equity trading for the client Charles Schwab.
- **Developed** the **automation suite** for regression testing (in Perl) and programming /debugging of **Perl/Shell** scripts to run batch processes in UNIX platform.
 - Created and executed test cases, identified and logged defects/bugs (Clear Quest).
 - Performed **Sanity** testing for new builds & **version controlling** using Clear-Case.
- Domain: Multi Functional Peripheral for the client Hewlett-Packard.
- Created **test plans** and **test sessions** in QC, performed testing on builds - both in development as well as delivery phase using **advanced testing tools** like HP DSS, HP Web Jet Admin.
 - Found critical defects through **ad-hoc/ exploratory** testing, reviewed and fixed bugs in the source code.
 - Performed build qualification with **Smoke & Sanity** testing.

Publications

- **Preetha Chatterjee**, Manziba Akanda Nishi, Kostadin Damevski, Vinay Augustine, Lori Pollock, and Nicholas A. Kraft, "**What Information about Code Snippets Is Available in Different Software-Related Documents? An Exploratory Study**," 24th IEEE International Conference on Software Analysis, Evolution, and Reengineering (SANER), Feb 2017.

Graduate Course Projects

- **Natural Language Processing** (using Python, Machine Learning techniques and NLP analysis tools):
 - Designed and developed an interactive factoid **question answering (QA) system** to retrieve information from news articles related to the stock market, using regular expressions, morphological analyzers, tokenizers, part-of-speech taggers, Natural Language ToolKit (NLTK) named entity recognition chunker and WordNet Interface.
 - Designed and developed a system for **character prediction** in a scanning-based Augmentative or Alternative Communication (AAC) System using n-gram modeling (achieved 45% time savings on average).
 - Designed and developed a system for **sentiment analysis** in Twitter using various linguistic features and supervised machine learning algorithms (achieved 91% system accuracy).
- **Advanced Software Engineering**: Designed and developed an interface for Parsons problems to learn Racket Fundamentals using Python and MySQL.
- **Database Systems**: Designed and developed an online food ordering system using Java and MySQL.
- **Machine Learning**: Implemented different machine learning algorithms such as Decision Tree, Random Forest, Logistic Regression, Multilayer Perceptron (MLP) and Hidden Markov Model (HMM) model on provided data sets.
- **Artificial Intelligence**: Implemented Partial Order Planning using LISP.
- **Computational Biomedicine**: Conducted a detailed survey on different types of text mining approaches for generating gene summaries from biomedical literature.
- **Networks**: Implemented P2P network simulation using C++.

Leadership & Affiliations

- **Founder and Chair, University of Delaware ACM-W Student Chapter (Jul, 2016- Present)** - Increase recruitment and retention of women in computing fields at the university level and offer student activities and projects that aim to improve the working and learning environments for women in computing.
- **Vice-Chair, CISTers (May, 2015- Aug, 2016)** University of Delaware - Provide a supportive community for all women in technology-driven fields at University of Delaware by initiating relevant programs, such as mentoring and early/pre-major outreach and informative seminars about career and research opportunities.
- **Member, Association for Computing Machinery (ACM) (Apr, 2015 - Present)**
- **Technical Administrator, Indian Graduate Student Association at the University of Delaware (IGSA)(May, 2015 - May, 2016)** - Providing overall technical support for IGSA activities, maintaining IGSA website, social media accounts, email etc and provide technical help to other IGSA members.

Honors & Awards

- **CRA-W Travel Scholarship** - CRA (Computing Research Association)-Women Grad Cohort Workshop 2017.
- **Lauri Pfeffer Shinn Memorial Award**, 2016 - A monetary award to one or more women (undergrad or graduate) in recognition of a contribution to the CIS department at University of Delaware and/or in recognition of academic success.
- **GHC Travel Scholarship** - by University of Delaware - Grace Hopper Celebration of Women in Computing 2015.
- **CRA-W Travel Scholarship** - CRA (Computing Research Association)-Women Grad Cohort Workshop 2015.