BHAGAT HUSEN

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WORK EXPERIENCE

Graduate Teaching Assistant — **Syracuse University, NY** — *Jan 2020 - Present*

- Helped graduate students understand operating systems concepts like paging, virtual memory management and scheduling.
- Assisted the faculty in the development of an auto-grader system using Python which compiled and ran student assignments producing grade reports.

Research Assistant — **Syracuse University, NY** — *Dec 2019 - Present*

- Parsed and analyzed historical PVF contracts to extract relevant data using PDFMiner.
- Improved the performance of the text extraction process by 20 times using C++ based Xpdf to extract data from historical pdf documents.

Software Engineer Co-op — **SmartKable, NY** — *Aug 2019 - Nov 2019*

- Researched and created an ad hoc multihop mesh network of sensor nodes with point-to-point and broadcast messaging.
- Developed an asynchronous, multithreaded Java library using Serial RxTx and Runnable interface to support bidirectional communication among the sensors.
- Used Amazon CodeCommit to handle code-versioning and manage collaboration among the team.

Associate Developer — **SAP Labs, India** — *Aug 2016 - Dec 2018*

- Developed a MVC based, Javascript UI framework, Fiori elements to automatically generate code with business logic by capturing attributes from user interface via XML.
- Followed Agile Manifesto using Jira to track feature delivery and timely release of the library.
- Participated in requirements gathering for feature requests with the stakeholders and produced the design documents.
- Designed and implemented an asynchronous cross-application navigation API using Javascript promises and RESTful OData.
- Used metadata-driven development along with semantic annotations to reduce front-end code by over 80%.
- Improved performance of UI5 applications by 60 % using a distributed library loading and cache buster mechanism.
- Spearheaded Test Driven Development process using QUnit for unit tests and OPA5 for integration testing.
- Ideated and led the team to design interactive trouble-shooting guides to help Application developers use Fiori elements framework, reducing the support tickets by 40%.
- Used Git for version-control and Gerrit for code-correction and collaboration among the team.
- Orchestrated and automated build cycles using Jenkins server to ensure continuous delivery using Pipelines and Blue Ocean.

EDUCATION

Master of Science, Computer Science — *Jan 2019 - Dec 2020*

Syracuse University, Syracuse, NY *GPA: 3.9/4.0*

Coursework: Object Oriented Design, Design & Analysis of Algorithms, Artificial Intelligence, Operating Systems, Advanced Data Structures, Natural Language Processing, Social Media Mining

TECHNICAL SKILLS

Programming:	C++, JavaScript, Python (scikit-learn), Java, UI5, XML, Haskell, AngularJS, NodeJS
Framework & Tools:	MySQL, Git, Fiori elements, Django, Visual Studio, Gerrit, Jenkins, Heroku, Jira ,LaTeX
Familiar with:	Linux (Ubuntu, Fedora), Bash, HTML, RESTful OData v2

TECHNICAL PROJECTS

DotsAndBoxes3v3 — *Aug 2019 - Dec 2019*

- Implemented an AI system using NumPy and PyTorch that combines minimax tree search and neural nets to play 3-player dots and boxes.
- Used rectified linear activation function to increase performance of neural network.
- Performed hyperparameter tuning to adapt the learning rate of the neural network using backpropagation.
- Achieved a win ratio of 70% with a random baseline opponent and 30% using spatial locality.

Code Publisher — *Jan 2019 - May 2019*

- Developed a remote code publisher in C++ and Windows Presentation Foundation (WPF) using an asynchronous message-passing communication channel to convert source code files into HTML web pages.
- Used C++/CLI translater to join the Managed C# code with the C++ Code Publisher.
- Implemented SOLID design principles to have reusable, maintainable, scalable and easy testable code.
- Added unit tests using Microsoft's Unit testing framework in C++.

Accessibility Automation — *Jan 2017 - Oct 2017*

- Designed a system using NodeJS and AngularJS increasing web application accessibility by 60%.
- Used ARIA roles and properties to attribute Javascript elements to identify speech output errors.
- Developed a chrome plugin to output potential accessibility errors in UI5 application.

Social Media Analysis (SNA) for detection of cyberbullying — *Aug 2015 - July 2016*

- Scraped and preprocessed the training data of 15000 posts from twitter and MySpace using tokenization, stop-words removal and lemmatization.
- Implemented a sentiment analysis model using coreNLP toolkit (using Recursive Neural Nets) to analyze the anti/bullying sentiment.
- Designed an ensembled ML model using SVM to identify online bullying scenarios and categorized them into high/medium/low level bullying using a Multi-SVM model achieving an accuracy of 91%.
- Developed a response grading system using Reflective User Interface in Django to automatically monitor and prevent cyber-bullying on social networking sites.
- Used Heroku flow to streamline application deployment using continuous delivery practices.