Abhishek Purushothama

Curriculum Vitae[1]
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Research Interests

Natural Language Processing (NLP), Multilingual NLP, Computational Linguistics, NLP for low-resource languages, Formal Methods for NLP, Knowledge Graphs.

Education

Fall 2021 - present	**University of Colorado Boulder** – Boulder, Colorado, USA Master of Science in Computer Science **Research Advisor:** Dr. Katharina Kann GPA: 3.814/4[2].
2013 – 2017	**PES Institute of Technology** – Bengaluru, Karnataka, India Bachelor of Engineering in Computer Science and Enginering **Research Advisor:** Dr. Kavi Mahesh GPA: 8.78/10.

Honors

2021	VMware End User Computing (EUC) Most Valuable Player (1 of 3) of 2021 Q1

Publications

2016	**Classification-based Access Control Methodology in RDF (Non Refereed)** Abhishek P, Jayateerth S Deshpande, Kavi Mahesh. *TERI - International Conference on Digital Libraries 2016.*

Patents

2022	**US Patent application filed by Siemens Corporation in the Area of Instruction Generation (5% Share)**

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[1]Generated on December 27, 2022
[2]As of Spring 2022

Research Projects

Jan – Oct 2022

Analysis of Cross-lingual Transfer with Selective Language Adaptation in Pre-trained Multilingual Language Models
Kann NALA Lab
Designed and conducted experiments with XLM-R to explore if and how higher-resource languages can be selected empirically to augment model performance in low-resource languages.
Collaborator: Abteen Ebrahimi
Advisor: Dr. Katharina Kann

Mar – May 2022

The Birds Need Attention Too: Analysing usage of Self Attention in identifying bird calls in soundscapes
CSCI 5902: Deep Learning
Comparative analysis between Attention and Convolution-based backbones for Bird-CLEF 2022 - Bird call classification task. Aimed to analyze the efficacy of moving to a transformer paradigm for the task.
Collaborator: Chandra Kanth Nagesh

Sep – Dec 2021

Multilingual News Article Similarity for SemEval-2022 Task 8 (*Unsubmitted*)
CSCI 5622 Machine Learning
Built an ensemble system which followed Sentence-BERT style Siamese Networks using mBERT. It was additionally augmented with Topic Modeling and Language-specific spaCy NER model labels. Achieved positive Pearson correlation for the hold-out set.
Collaborators: Iris Liu, Xinyu Cao

Jun – Jul 2015

Ullekha Mala 2.0 : Kannada Wikipedia Page Generation from DBPedia
KAnOE(Center for Knowledge Analytics and Ontological Engineering)
Worked on methods and techniques to generate Wikipages in Kannada(*kan*) from the English DBPedia linked open data.
Collaborator: Jayateerth S Deshpande
Advisor: Dr. Kavi Mahesh

Teaching Experience

Fall 2022

Teaching Assistant, Department of Computer Science
University of Colorado Boulder
CSCI 3155: Principles of Programming Languages
Lead weekly recitations for two sections (~60 students) and conducted office hours for the course. Implemented auto-grading of labs for ~170 students on Github. Topics include values, scoping, recursion, higher-order functions, small-step semantics and and other principles of programming languages and functional programming.
Instructor: Dr. Bor-Yuh Evan Chang

Spring 2022

Teaching Assistant, Department of Computer Science
University of Colorado Boulder
CSCI 3155: Principles of Programming Languages
Lead weekly recitations for two sections (~80 students) and conducted office hours for the course. Topics included values, scoping, recursion, higher-order functions and other principles of programming languages and functional programming.
Instructors: Dr. Sriram Sankaranarayanan and Dr. Gowtham Kaki

Industry Experience

May 2022 - Aug 2022

Research and Engineering Intern - Knowledge Graphs (KG)
Siemens, United States
Worked with Smart Machine Vision and Visualization Research Group at Siemens Technology. Contributed to design and prototyping a Semantic Application involving information extraction from 3D data, KG construction and Ontology development and alignment.
Advisors: Dr. Holly Ferguson, Dr. Mareike Kritzler

Jul 2017 - Jul 2021

Member of Technical Staff 3
VMware, Bengaluru, India
A member of VMware Horizon Service research and development team. Contributed to the design, development and support of the product ecosystem and its growth into a scalable multi-cloud offering.

Jan 2017 - Jun 2017

Software Engineering Intern
Juniper Networks, Bengaluru, India
Worked with the Junos OS Kernel Infrastructure team, building tools for code reviews and issue management, kernel crash data collection and debugging.

Posters and Talks

Dec 2016	**Classification-based Access Control Methodology in RDF** Talk in Session on Information Storage and Retrieval Day 3, TERI International Conference on Digital Libraries 2016
Spring 2022	**How helpful are the neighbours?** Poster in Research Expo for PhD Open House Department of Computer Science, University of Colorado Boulder

Mentorship and Service

Oct 2021 - Present	**Website Manager, Computer Science Graduate Student Association** **University of Colorado Boulder** Managing the website for the student association, working the officers and members.
Mar, Oct 2022	**Peer Interviewer, CS Graduate Professional Development Club** **University of Colorado Boulder** Peer Interviewer in Mock Interviews to help fellow CS graduate students practice interviewing and get feedback.
Aug 2022	**Speaker, CS Graduate Professional Development Club** **University of Colorado Boulder** Shared my summer internship hunt and work experience with fellow CS graduate students.
Spring 2022	**Moderator for Current graduate students panel, PhD Open House** Department of Computer Science, University of Colorado Boulder Moderated a panel of five graduate students across PhD and Master's programs in Computer Science for prospective PhD student audience.
Mar-Jul 2020	**Contributor, cms-maker project** Devopedia Foundation Contributed to the foundation's open source project on generating Chicago Manual Style citation generation from web pages. Used Named Entity Recognition in conjunction with scaled web-scraping to identify authors, publisher and other citation information.
Jul 2018, 2020	**Project Mentor, New College Graduate Bootcamp** VMware, Bengaluru, India Mentored groups of students on design and development of a multi-component application.

Jan 2020	**Contributor, CareerVillage.org with VMware Service Learning** VMware Foundation, VMware, India Pro-bono web development contribution to the non-profit career advice site CareerVillage.org
Jul 2019	**Panelist, New College Graduate Bootcamp** VMware, Bengaluru, India Panelist on the Former New College Graduate panel, sharing the NCG Engineer experience at the company.
Aug – Oct 2019	**Project Mentor, UC Davis AI Society with VMware Service Learning** VMware Foundation, VMware, India Formulated a NLP Project related to Applied Open Domain Question Answering using DrQA and guided the undergraduate students of UC Davis in learning and engineering for the same.
2013 – 2017	**Writer, Co-editor with Papyrus - PES's own newsletter** PES University, Bengaluru, India Papyrus was a student-led newsletter covering topics and events at PES University. Covered events, performed interviews and wrote columns. Later the co-Editor of the newsletter responsible for recruitment, assigning tasks, reviewing submissions and editing the newsletter.
2014 – 2016	**Writer, Event Organizer and Lead Organizer with PES Entrepreneurship Cell** PES University, Bengaluru, India PES Entrepreneurship Cell was a student organization to encourage student spirit and pursuits in entrepreneurship. Wrote for its blog, and was an event organizer for its events and competition. Later was the lead organizer, managing a small team of other event organizing volunteers.

Courses and Certifications

Winter 2019-20	**XCS224N - Natural Language Processing with Deep Learning (Remote)** Stanford Center for Professional Development, Stanford University
Oct 2015	**Cryptography-I (Online) by Dan Boneh** Stanford University through Coursera Inc.

Technical skills

Programming languages

Proficient in: Java, Python

Familiar with: Javascript, Scala, C

Tools and Technologies

Git, Docker, Kubernetes, PyTorch, CI-CD, REST API Design, Command Line Tooling, Knowledge Graphs

Languages

English(eng), Hindi(hin), Kannada(kan).