KEN TU

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SUMMARY

- Researcher/Engineer, passionate about solving real-world problems and social issues empirically through development & research experience in the synergy of Software Engineering and AI
- Extensive individual & collaborative work in Search-Based SE, NLP/NLU, recommendation systems, graph modeling, and statistical testing
- Interested in infrastructure development as well as research-oriented machine learning and data science positions

EDUCATION

NORTH CAROLINA STATE UNIVERSITY (NCSU) – *Raleigh, NC*

Ph.D. in Computer Science - **GPA: 3.67 / 4.0** — **Dec 2020**

APPALACHIAN STATE UNIVERSITY (ASU) – *Boone, NC*

M.A. in Mathematical Science & M.S. in Computer Science - **GPA: 3.74 / 4.0**

B.S. in Computational Mathematics, *magna cum laude* - **GPA: 3.80 / 4.0** — **May 2015**

RELEVANT SKILLS

Teaching Assistant	|	Calculus I/II, Data Structure, SE, Parallel Architecture, & Artificial Intelligences
Programming	|	Python, R, Java, JavaScript, NodeJS, C++, Bash, & MySQL
Frameworks/Tools	|	Git, Apache Spark & Kafka, Scikit-learn, Keras, TensorFlow, Ansible, & Docker
Operating Systems	|	Linux(Ubuntu) & Windows
Languages	|	English & Vietnamese

PUBLICATIONS & RESEARCH PROJECTS

Is One Hyperparameter Optimizer Enough?

- Accepted for NSF SWAN 2018. An extensive empirical case study in defect prediction of 4 main classes of hyperparameter optimizers to determine if there is a best hyperparameter tuner for software analytics (SA). This confirms the usefulness of tuning, yet questions the versatility of it and expands the definition of hyperparameter tuning in SA literature.

Can you Explain that Text, Better? Comprehensible Text Analytics for SE Applications

- Novel combination method of LDA topic modeling and Fast Frugal Tree (depth of 4) to predict the severeness of bug reports in software analytics. Offers comparable performance but is more actionable than the common state-of-the-art text mining methods (TFIDF+SVM and LDADE+SVM). Submitted for IEEE ASE Conference 2018.

Facebook User's Age Prediction

- Mined and investigated unstructured 22k Facebook users' posts through Vietnamese language processing with traditional machine learning methods, convolutional neural networks, & LSTM to predict the user's age. Achieved accuracy = 79.6%.

Facial Beauty Rating

- Developed a facial attractiveness rater based on the SCUT-FBP dataset, contains images of 500 Asian women and applying open-source OpenFace software to extract facial landmarks as features. With Pearson correlation of 0.86, convolutional neural networks outperform traditional machine learning method such as Random Forest (only achieved 0.64).

Yelp Businesses Recommendation System

- Built a recommendation system with Apache Spark and Alternative Least Square algorithm integrated users' reviews sentiment analysis along with other attributes on the 4.5+ million reviews and 146k+ businesses Yelp dataset to suggest new businesses that are appropriate to the users' interests.

Developer Triage Bot

- Developed a task allocating bot on AWS that assigns & suggests suitable tasks for the developer along with recommending experienced developers in the team to help them if needed in real time through Slack interface and Github task tracking.

ACADEMIC COURSES

- Operation Research
- Pattern Recognition in Computer Vision
- Automatic Learning & Data Analysis
- Algorithms for Data Guided Business Intelligence
- Software Engineering
- Foundation of Software Science
- Design & Analysis of Algorithms + Graph Theory
- Statistical Concepts and Applications I and II

PROFESSIONAL EXPERIENCES

Graduate Assistant – *Computer Science Department, ASU + NCSU* Fall 2015-Present

- Research and collaborate with Dr. Menzies at the RAISE Lab (Real-world Artificial Intelligence for Software Engineering [SE]) for exploratory and experimental studies with future publication activities
- Coordinate with the professor & other Teaching Assistants as a team to consolidate plans, structure the course, design tests, conduct review sessions, facilitate labs, and deliver the lesson effectively
- Current Project: (1) studying and disseminating software of computational scientists community through NSF SI^2, and (2) analyzing the sentiment with purposes of scientific citations of SE research papers

R&D Data Science Intern – *YouNet & Gumi* Summer 2017

- Researched and designed scalable data-driven algorithms from machine learning and neural network methodologies
- Analyzed the semantics of data, developed model, optimized performance, & deployed projects to solve business problems
- Devised and enhanced core products in the system: Facial Beauty Rating, Facebook User's Age Prediction with Graph Clustering and Text Analytics, & Car Detection

Web Developer Intern – *OverMountain Studios, Inc* Summer 2016

- Designed, built, and maintained client's application with AngularJS & Bootstrap front-end and a NodeJS backend
- Tested functionality of client websites, troubleshooted for issues, and re-structured websites for scalability and usage

Resident Assistant – *University Housing, ASU* Spring 2013 – Summer 2015

- Organized building-wide and cross building wide programs that fostered community for 500+ students
- Expressed the voice of Resident Assistants and students on campus through composing policy and legislation proposals from Resident Assistant Council to University Housing Leadership
- Directly advised and collaborated with the new Resident Assistant(s) and Chair of the residence hall council professionally and efficiently to help develop their leadership
- Ensured the enforcement of legal and university policy through campus-wide duty rounds to provide a safe and inclusive living environment for all members of the Appalachian State community.

SIGNIFICANT AWARDS AND HONORS

- ACM Richard Tapia Celebration of Diversity in Computing, ***2018*** | Scholar, sponsored by IBM
- Pi Mu Epsilon Mathematics Honor Society, ***2013-Present*** | Academic Excellence, top 2% of the class
- Graduate Merits Fellowship, ***2015-16*** | Notable Mathematics Graduate Student ($10,000+), ASU
- Hall Staff of the Year, ***2013-15*** | Head Resident Assistant, distinct hall staff of the year for two consecutive years
- Student Employee of The Year, ***2014-15*** | Outstanding Undergraduate Research Assistant
- Who's Who Among Students in American Universities, ***2014-15*** | National Recognition for Student Leader

SERVICE

Community Liaison – *Asian Students In Alliance, NCSU* Summer 2017 – Present

Director of Advocacy – *East Coast Asian American Student Union (ECAASU)* Summer 2016 – Present

- Supervise team of 6 national board members through on-going performance review, regularly scheduled team meetings, and in-service training
- Create and sustain advocacy and activism opportunities, sustainable resources, and leadership development within Asian youth community with different nationalities and marginalized identities such as annual conferences (750+ attendees), campus tours, online materials, and online training/workshops.
- Build relationship and strengthen collaboration with diverse organizations, communities, and colleges/universities locally and nationally to advance just causes and equitable human rights of minorities