Kewen Peng

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Education

North Carolina State University — Raleigh, NC
Ph.D. in Computer Science | Advisor: Dr. Tim Menzies | Lab: RAISE Lab — *Aug. 2019 – May 2024*

Wake Forest University — Winston-Salem, NC
B.S. in Computer Science, B.A. in Mathematics — *Aug. 2015 – May 2019*

Skills

General Expertise: Data Science, Explainable AI , ML Optimization
Languages: Python, Java, C/C++, SQL
Toolkits: Pandas, NumPy, Matplotlib, scikit, TensorFlow/Keras, OpenCV
Related courses: Automated software engineering, applied logic, algorithm analysis, artificial intelligence, automated learning and data analysis

Work Experience

Research Assistant — Jan 2020 – Present
North Carolina State University, RAISE Lab — *Raleigh, NC*

- SE4AI: Conduct qualitative and quantitative studies to understand how SE processes/philosophies can improve AI.
- AI4SE: Research & build tools that are human-focused/explainable AI to better software development.

Teaching Assistant — Aug 2019 – Dec 2019
North Carolina State University, computer science department — *Raleigh, NC*

- Coordinate with the professor & other TAs as a team to structure the (SE, Programming Language) courses, design tests, and facilitate labs.

Selected Projects

Exploring Noether Bound over Noncommutative Algebra — May 2018 – Aug. 2018
Wake Forest University, summer research fellowship, honor thesis — *Winston-Salem, NC*

- Discovered a new pattern of upper bounds over noncommutative algebra

Lung Cancer Survival Prediction using TCGA Clinical Data — Aug. 2018 – May. 2019
Wake Forest University, honor thesis — *Winston-Salem, NC*

- Proposed and applied a multi-learner preprocessor to impute missing data
- Bringing the novelty of appending the imputed data and the imputation info, we achieved better performance in all selected machine learners

Fairness-aware AI (LAS Funded) — Oct. 2019 – Present
North Carolina State University, RAISE Lab, research project — *Raleigh, NC*

- Explored fairer results in software machine learners
- Explored reliable and robust explanation generation tools for fairer SE
- Contributed to the open source python package and conference paper

Taming Deep Learning (LAS Funded) — Jan. 2021 – Present
North Carolina State University, RAISE Lab, research project — *Raleigh, NC*

- Exploring model-agnostic methods (e.g. LIME) to reduce the training time of DNN models on NetFlow data.

Publications

- Luigi Ferraro, Ellen Kirkman, W Frank Moore, **Kewen Peng**, *On the Noether Bound for Noncommutative Rings*, **PAMS journal** (Accepted).
- Joymallya Chakraborty, **Kewen Peng**, Tim Menzies, *Making fair ML software using trustworthy explanation*, **ESEC/FSE 2020** (Accepted).
- **Kewen Peng**, Tim Menzies, *Defect Reduction Planning (using TimeLIME)*, **TSE journal** (Accepted).
- **Kewen Peng**, Christian Kaltenecker, Norbert Siegmund, Sven Apel, Tim Menzies, *VEER: Disagreement-Free Multi-objective Configuration*, **ICSE 2022** (Submitted).