Ana Tudor

Curriculum Vitae

Technology R&D Specialist
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Education

2021–2022 **Master of Science, Electrical Engineering and Computer Science**, *University of California, Berkeley*.
Thesis: Computational Methods for Assessing and Improving Quality of Study Group Formation, 2022
GPA: 3.809

2017–2021 **Bachelor of Science, Electrical Engineering and Computer Science**, *University of California, Berkeley*.
Honors in Electrical Engineering and Computer Science
Minor in Data Science
GPA: 3.678

Publications

Articles

2024 Hayden Freedman, Jacob Metzger, Neda Abolhassani, Ana Tudor, Bill Tomlinson, and Sanjoy Paul. A bayesian approach to constructing probabilistic models from knowledge graphs. *International Journal of Semantic Computing*, volume 18, 2024.

In Conference Proceedings

2023 Sumer Kohli, Neelesh Ramachandran, Ana Tudor, Gloria Tumushabe, Olivia Hsu, and Gireeja Ranade. Inclusive study group formation at scale. In *Proceedings of the 54th ACM Technical Symposium on Computer Science Education V. 1*, pages 11–17, 2023.

2023 Neda Abolhassani, Ana Tudor, and Sanjoy Paul. A data mesh adaptable oil and gas ontology based on open subsurface data universe (osdu). In *KEOD 2023- International Conference on Knowledge Engineering and Ontology Development*, pages 29–39, 2023.

2020 Wim Lavrijsen, Ana Tudor, Juliane Müller, Costin Iancu, and Wibe de Jong. Classical optimizers for noisy intermediate-scale quantum devices. In *2020 IEEE International Conference on Quantum Computing and Engineering (QCE)*, pages 267–277. IEEE, 2020.

2020 Marc G Davis, Ethan Smith, Ana Tudor, Koushik Sen, Irfan Siddiqi, and Costin Iancu. Towards optimal topology aware quantum circuit synthesis. In *2020 IEEE International Conference on Quantum Computing and Engineering (QCE)*, pages 223–234. IEEE, 2020.

2019 Wim Lavrijsen, Ana Tudor, Jeffrey Larson, Kevin Sung, Lucy Linder, Juliane Mueller, Jarrod McClean, Ryan Babbush, Miroslav Urbanek, Costin Iancu, et al. Skquant-opt: Optimizers for noisy intermediate-scale quantum devices. In *APS March Meeting Abstracts*, volume 2019, pages F27–010, 2019.

2019 Marc Grau Davis, Ethan Smith, Ana Tudor, Koushik Sen, Irfan Siddiqi, and Costin Iancu. Heuristics for quantum compiling with a continuous gate set. In *3rd International Workshop on Quantum Compilation as part of the International Conference On Computer Aided Design 2019*, 2019.

Patents

2022 **US Patent 20220351133-A1**, *"Modeling Dynamic Material Flow in Generative Design Using Topological Maps"*, Nov. 3, 2022.
Inventors: Akiona, Nicholas (Saratoga, CA), Zhu, Haitao (Compton, CA), Tang, Eric (Cupertino, CA), Tudor, Ana (Belmont, CA)

Research Experience

Accenture Data and AI, SEED Team

Jan 2024 – present **Technology R&D Specialist**, *Applied LLM R&D*, Developing POC techniques combining LLM, classical NLP, data science, and Knowledge Graph technologies..

- Collaboration with Wei Wei's Accenture Foundation Models team - developing an online service and offline scalable pipeline for LLM-based text and information extraction from multimodal data.
- Created a POC tool for the automated intake of unstructured text data to RDF graphs, by employing LLM and RAG techniques for entity recognition, entity linking, and relationship extraction tasks.
- Developed LLM-derived analytics dashboards for large-scale communications data.

Advisor : **Dr. Neda Abolhassani**, *Knowledge Graph Tech Lead and Manager, Data and AI SEED Team*, Accenture

Accenture Labs, Systems and Platforms Team

Nov 2022 – Dec 2023 **Technology R&D Specialist**, *Knowledge Graph Applied Machine Learning* .

- Designed machine learning and automation-based approaches for leveraging Knowledge Graph technologies. Developed LLM and Deep RL methods for enhancing link prediction of RDF Graph ontologies to existing open-web ontologies.
- Automated ontology formation for the OSDU database, with resulting paper accepted to KEOD 2023.

Advisor : **Dr. Sanjoy Paul**, *Director of the AI Houston Institute, Lecturer in Computer Science*, Rice University

University of California, Berkeley

Aug 2021 – May 2022 **Graduate Student Researcher**, *Machine Learning Methods for Study Group Formation and Evaluation*.

- Designed, deployed, and assessed an Actor-Critic RL model with for Deep Clustering Policy Iteration, to improve the formation of study groups in large-scale classrooms.
- Devised an educational survey instrument to measure student-perceived satisfaction with study groups, as it impacts their personal evaluation of social and academic outcomes.
- Thesis, Master of Science: Computational Methods for Assessing and Improving Quality of Study Group Formation

Advisor : **Dr. Gireeja Ranade**, *Assistant Teaching Professor, Department of Electrical Engineering & Computer Science*, University of California, Berkeley (**Dr. Gireeja Ranade**)

Jan 2021 – May 2021 **Student Assistant**, *Subjective Knowledge Base Modeling*.

- Worked towards improving a subjective knowledge base model which aims to represent perspective differences in word embedding relations.
- Created evaluation datasets demonstrating distinct authorial semantics and perspectives, comprised of 1950s newspaper articles around the topic of civil rights, and analyzed results of the model's performance in classifying this dataset.
- Improved embeddings model, with relation prediction accuracy increase up to 2%.

Advisor : **Dr. David Bamman**, *Associate Professor, Department of Information Science*, University of California, Berkeley

Lawrence Berkeley National Lab

May 2018 - Aug 2019 **Student assistant**, *Quantum circuit synthesis methods development*.

- Contributed to the testing of a synthesizer aiming to compile arbitrary quantum unitary gates to a sequence of native QPU commands.
- Created a compiler to translate between the OpenQASM quantum assembly language and the qtrl language: github.com/ana-tudor/openqasm_to_qtrl.
- Tested and compared classical optimization algorithms specific to error mitigation in quantum circuits, documenting for researcher use within the quantum devices sphere.

Advisor : **Dr. Wim Lavrijsen**, *Computer Systems Engineer*, Lawrence Berkeley National Lab

Teaching Positions

Spring, 2021 : **EECS 16B: Designing Information Devices and Systems II**, *Head Teacher Assistant*, University of California, Berkeley.
- Managed logistics and policy communications for a course of 1200 students.
- Co-administered course logistics and communications for a class of 1200 students.
Led a long-format discussion section once per week, to meet student needs for in-depth content review.
- Helped lead course staff meetings, and discussion and lab section scheduling.
- Organized and communicated policy and content resources for students, to ensure accessibility and transparency.
- Regularly incorporated staff/student feedback to improve course policies, for example by organizing weekly resources posts and introducing extra exam review sessions.
- Helped administer, proctor, and grade exams.

Fall, 2020 : **Data 100: Principles and Techniques of Data Science**, *Discussion Teaching Assistant*, University of California, Berkeley.
- Lead a discussion and a lab section per week.
- Contributed to content design for exam content and course discussion sections.
- Assisted in answering student content and logistics questions during office hours.

Fall, 2020 : **CS 189: Introduction to Machine Learning**, *Reader and Office Hours Assistant*, University of California, Berkeley.
- Aided in weekly discussion section administration, and leading 2 sections over the course of the semester.
- Combined student feedback and personal suggestions, to enact changes in discussion sections that improved the quality and accessibility of learning.
- Assisted in question-answering during lecture, facilitating remote learning as much as possible.
- Assisted in proctoring and grading exams.

Spring, 2020 : **EECS 127: Optimization Models in Engineering**, *Reader*, University of California, Berkeley.
- Graded homework assignments and exams, and provided feedback on content difficulty and wording.
- Assisted in answering student content questions during office hours.

Academic Achievements & Recognitions

2021 **B.S. with Honors Distinction** in Electrical Engineering and Computer Science, University of California, Berkeley

Positions of Responsibility

Aug 2017- May 2021 **Berkeley ANOVA, Vice President of Sites**, University of California, Berkeley.
Managed logistics and communications for college-student-led extracurricular CS courses at ten middle and high school sites in the Oakland/Berkeley area. Added two middle school sites to our program.

May 2019 - Aug 2020 **University of California Women's Chorale (UCWC), Web Manager**.
Redesigned and maintained the UCWC website.

References

Dr. Sanjoy Paul
Director of the AI Houston Institute, Office of Innovation
Rice University
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Dr. Gireeja Ranade
Assistant Teaching Professor, Dept. of Electrical Engineering & Computer Science
University of California, Berkeley
✉ ranade@eecs.berkeley.edu

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