Austin Osceola Narcomey

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Education

Stanford University Stanford, CA

Master of Science in Computer Science (Artificial Intelligence Specialization) *April 2019 – December 2020*

Coterminal 5-year degree with Bachelor's, extended with additional quarter of research work

Cumulative GPA: 4.03 of 4.3 | 4.0 of 4.0

Stanford University Stanford, CA

Bachelor of Science in Computer Science (Artificial Intelligence Track) *September 2015 – April 2020*

Cumulative GPA: 3.87 of 4.3 | 3.81 of 4.0

Highlighted Coursework: CS221 Artificial Intelligence, CS131 Computer Vision, CS230 Deep Learning, CS224N Natural Language Processing with Deep Learning, CS224U Natural Language Understanding, CS229 Machine Learning, CS234 Reinforcement Learning, Psych209 Neural Network Models of Cognition, CS384 Social-Ethical Issues in NLP.

AI/ML Research Experience

Vision and Learning Lab / Human-Computer Interaction Group Stanford, CA

Stanford University | Professors Fei-Fei Li and Michael Bernstein | Scene Graph Prediction [**1**] *April 2018 – May 2019*

- Co-authored research paper with graduate students and professors, submitted for publication at CVPR/NeurIPS.
- Researched novel deep learning model combining few-shot learning and scene graph prediction for the first time.
- Explored wide range of literature from cognitive scene perception to interpretability to few-shot learning.
- Conducted extensive experiments to iterate and analyze Graph Convolution architecture. Learning relationships as functions between objects defines a relationship-oriented embedding space that enables few-shot classification.
- Co-wrote conference and archival submissions through complete peer review cycle.

Vision and Learning Lab / Human-Computer Interaction Group Stanford, CA

Stanford University | Professors Fei-Fei Li and Michael Bernstein | Human Evaluation [**2**] *December 2018 – May 2019*

- Co-authored and co-wrote research paper with graduate students and professors, accepted for publication with Oral Presentation at NeurIPS 2019, awarded to top 0.5% or 36 papers out of 7000.
- Researched novel crowdsourcing framework to scalably and accurately evaluate human perception of generative ML models. More direct than automated proxies, and cheaper and more consistent than other human evaluation.
- Explored literature in psychophysics, perception, crowdsourcing, and social computing.
- Trained GAN models, iterated on crowd task design to capture differences in human perception between models.
- Co-developed proof-of-concept competitive leaderboard for human evaluation of generative ML tasks.

Vision and Learning Lab / Human-Computer Interaction Group Stanford, CA

Stanford University | Professors Fei-Fei Li and Michael Bernstein | Human-AI Collaboration [**3**][**4**]*June 2019 – Present*

- Leading two ongoing research projects with graduate students and professors to improve Human-AI collaboration.
- Researching novel self-supervised framework to learn diverse set of user-independent, task-agnostic collaborative sub-goals within environment. Enables more feasible interpretation and response to diverse user actions.
- Explored literature in cognition, psychology, self-supervised learning, explainability, and human-AI interaction.
- Leading design of learning pipeline toward human interaction, expansion of self-supervised frameworks toward multi-agent collaboration, experimentation to learn sub-goals, and planning for future user studies.
- Leading developing project to help interactive ML models communicate their capabilities and limitations to users.

Publications, Pre-prints, and Ongoing Work

[**1**] Apoorva Dornadula, **Austin Narcomey**, Ranjay Krishna, Michael Bernstein, Li Fei-Fei. "Learning Object Representations with Predicate Functions: Enabling Few-Shot Scene Graph Prediction." *arXiv.* 2019.

[**2**] Sharon Zhou*, Mitchell Gordon*, Ranjay Krishna, **Austin Narcomey**, Li Fei-Fei, Michael Bernstein. "HYPE: A Benchmark for Human eYe Perceptual Evaluation of Generative Models." *Advances in Neural Information Processing Systems.* 2019.

[**3**] **Austin Narcomey**, Ranjay Krishna, Michael Bernstein, Li Fei-Fei. "Improving Human-AI Collaboration by Quickly Adapting to Diverse Human Collaboration Preferences." *Under development, Advances in Neural Information Processing Systems Workshop: Indigenous in ML.* 2020.

[**4**] **Austin Narcomey**, Ranjay Krishna, Michael Bernstein, Li Fei-Fei. "Meeting of the Minds: Model-agnostic Translator to Improve Human-AI Collaboration." *Under development.*

Conference and Presentation Experience

Thirty-fourth Conference on Neural Information Processing Systems Virtual
Workshop Poster Presentation | Indigenous in ML *December 2020*

- Presented ongoing work on human-AI collaboration with diverse user populations **[3]**.
- Connecting ML research experience to benefits for underrepresented communities and perspectives.
- Engaging with Indigenous leaders in AI/ML about uplifting Indigenous perspectives on nature of AI.

American Indian Science and Engineering Society National Conference Seattle, WA
Presentation Co-lead *October 2020*

- Created and co-led talk on Indigenous people and representation in AI research and industry.
- Connected dual impacts of equal representation: communities benefit from career opportunities and more informed AI applications, and the field benefits from more creative research due to greater cultural-ideological diversity.
- Engaging with attendees for future collaborations to improve Indigenous representation in CS and AI.

American Indian Science and Engineering Society National Conference Milwaukee, WI
Presentation Co-lead *October 2019*

- Co-led talk on AI applications to benefit Indigenous communities.
- Engaged with attendees on community needs and AI solutions.

Teaching Experience

Course Assistant | Stanford University Stanford, CA
CS 131: "Computer Vision: Foundations and Applications" *September 2020 – December 2020*

- Collaborated with other CAs and instructors to adapt course to online-friendly format amid COVID-19 pandemic.
- Created curriculum to teach recitation sections to supplement lectures for students with less technical background.
- Managed large volume of student questions with particular attentiveness and detailed explanations.
- Improved assignments from prior years for greater clarity, conceptual learning, and engagement.
- Wrote detailed documentation to guide further improvement in future iterations of the course.

Research Mentor and Program Instructor | Stanford University Stanford, CA
AI4ALL Program *June 2020 – July 2020*

- Successfully co-taught fundamentals of Artificial Intelligence, Machine Learning, and Computer Vision to diverse underrepresented high school students from wide-ranging educational backgrounds.
- Developed curriculum to be technically informative, accessible to all students, and engaging for real-world impact.
- Fostered students' passions, plans, and confidence for applying AI to solve problems important to them.

Professional Experience

Software Development and Engineering Intern Sunnyvale, CA
Amazon.com | Lab126 | Alexa *June 2018 – September 2018*

- Designed, implemented, tested, and internally deployed fully-independent project for Amazon Alexa.
- Built architecture for new HTTP-based web service interacting with other internal Amazon services.
- Organized development schedule to guarantee on-time delivery of MVP and delivered product on-time.
- Wrote extensive documentation to record project design, implementation details, and future work.
- Planned for scalability and future expansions into production, presented final result to management.

Software Engineering Intern San Diego, CA
Northrop Grumman Corporation | Autonomous Systems *June 2017 – September 2017*

- Developed robust and fail-safe software for flight critical systems in autonomous aircraft.
- Wrote comprehensive regression test scripts to verify continued behavior of all added functionality.
- Consulted with team members, test pilots, management to define and deliver goals of optimal software.

AI Projects

RNN-based evaluator of machine translation to imitate human evaluation, RNN-based AI negotiation agent, CNN-based neural style transfer for audio, hand-engineered human-like chatbot, Bayesian network for predicting film success.

Technical Skills

- Presenting the research contribution of proposed ideas and technical achievements to faculty and other stakeholders.
- AI Research using Machine Learning frameworks including PyTorch, TensorFlow, SciPy, and Keras.
- Proficiency in programming in Python, Java, C++, C | Experience programming in MATLAB, Javascript.
- Building user studies to examine human-AI interaction via Amazon Mechanical Turk.
- Spanish foreign language skills applied to study NLP and machine translation.