ANA M. TARANO

Hialeah, FL

EDUCATION

Ph.D. in Aeronautics and Astronautics 01/2016 - 12/2020
Stanford University, Stanford, CA
Dissertation: Automated Inference of Impacting Asteroids' Physical Properties and Motion
Advisors: Professor Sigrid Close and Dr. Donovan Mathias
Relevant Courses: Machine Learning, Optimization, Statistics, Sensors, Smart Product Design, Mechatronics
Graduate-Level Course Assistantship: Spacecraft Design and Laboratory

M.S. in Aeronautics and Astronautics 09/2013 - 12/2015
Stanford University, Stanford, CA
Graduate-Level Course Assistantships: Classical Dynamics, Spacecraft Design and Laboratory

B.S. in Aeronautics and Astronautics 09/2009 - 03/2014
Stanford University, Stanford, CA

RELEVANT EXPERIENCE

Natural Language Processing: An Interactive AI 11/2021 - Present
Project Manager at Stanford University Human-Centered AI *Remote and New York, NY*

- Providing machine learning, technical and human-computer interaction leadership for Being, a conversational AI chatbot who is a poet and educator with human-centered traits that users engage through a microphone, speakers, and screen from a Unity game app.
- Developed and deployed a Python Flask web app for a poet to generate poetry in a specific style by curating a dataset, fine-tuning NLP transformers, and evaluating optimal hyperparameters.
- Led the strategy, execution, and quality assurance of the NLP engines, dataset, development stack, data monitoring web interface, and game app through design, research, analysis, and testing.
- Collaborated with artists, game developers, engineers, venue production teams, creative director, educators, filmmakers, and dancers to document, test, design and execute the best user experience, and to assess data needs in order to improve diversity and quality of dataset.
- **Tools**: Python, Visual Studio, OpenAI API, GPT-J, Github, Microsoft Azure Cognitive Services, AWS.

Machine Learning and Optimization from Optical Remote Sensing 06/2016 - 12/2020
Research Associate at NASA Ames and PhD Student at Stanford University *Moffett Field, CA*

- Funded by NASA's Asteroid Threat Assessment Project at NASA Advanced Supercomputing Division for automating the inference of asteroid velocity, entry angle, and physical properties from satellite and ground-based light curve (radiometry) data.
- Generated a synthetic but realistic physics-based dataset to overcome a limited quantity of real labeled data since this was the first time classification, regression, or clustering approaches were applied.
- Designed, built, and tested end-to-end data pipelines, including combinations of pre-processing algorithms with spatial algorithms, optimization, supervised and unsupervised machine learning methods, and evaluated that the most accurate and generalizable methods used scaled and logarithmically transformed features with deep neural networks, such as a CNN, and random forest regression.
- Extended the Probabilistic Asteroid Impact Risk model that assesses the risk that potential asteroid strikes pose to Earth's population by improving the impact consequence modeling and defining relative damage probabilities.
- **Tools**: Python, Keras, TensorFlow, Scikit-Learn, Jupyter, C++, MATLAB, computational modeling.

Data Analysis from Radar Remote Sensing 06/2014 - 09/2015
Scientific and Engineering Student Intern at NASA Goddard Space Flight Center *Greenbelt, MD*

- Processed and analyzed raw meteor radar data from 8-antenna transmitting array at NASA Heliophysics Science Division.
- Derived 3D true velocities of detected parent meteoroids using interferometry (an imaging radar technique) to reproduce geospatial trajectories and compared angles of radar beam, detections, and Earth's magnetic fields to investigate plasma instability hypotheses behind unexpected detections.
- Implemented a detection algorithm from SNR returns using signal and image processing that facilitated statistical studies of a large dataset.
- **Tools**: MATLAB, signal processing, image processing, statistics, computational modeling.

RECENT SOFTWARE ENGINEERING PROJECTS

Mobile App Development 03/2021 - 06/2021
Data Engineer at Develop for Good (Spring Cycle) *Remote*

- Pivoted to a developer role 3 weeks in to ensure the team met deadline and non-profit client's expectations.
- Spearheaded the full-stack development of the monetary transaction and splash pages for a mobile app in collaboration with designers, project managers, other developers, and non-profit leadership.
- Was the second (out of 4) most prolific contributor to the codebase in spite of being the most novice.
- **Tools**: Flutter, Firebase, Android Studio, XCode, Github, Figma, Slack, Notion.

Mobile Augmented Reality Development 01/2021 - 02/2021
Project at Augmented Reality (AR) Bootcamp *Remote*

- Designed and developed a mobile AR app with the ability to detect planes, track images and faces, and place 3D objects in scenes with light-responsive shadows using real-time ray tracing.
- Added user interface interactables for navigating between different AR scenes.
- **Tools**: Unity, C#, AR Foundation, XCode.

AWARDS AND DISTINCTIONS

Invited Speaker of "Machine Learning for Planetary Science", American Geophysical Union (*Remote*). 2020
Engineer of the Future Leadership Award, Straubel Foundation (*Woodside, CA*). 2020
Champion Advocate Award, Associated Students of Stanford University (*Stanford, CA*). 2019
Community Impact Award, Stanford Alumni Association (*Stanford, CA*). 2019
Group Achievement Award to Asteroid Threat Assesment Project, NASA (*Washington, DC*). 2018
Honor Award for NEO SDT Risk Assessment Team, NASA Ames (*Moffett Field, CA*). 2017
Outstanding Poster Award, Stanford University Opportunity Job Fair (*Washington, DC*). 2017
Sharon Kay Stanaway Award Summer Doctoral Fellowship, Stanford Aero/Astro Dept. (*Stanford, CA*). 2016
Enhancing Diversity in Graduate Education Doctoral Fellowship, Stanford University (*Stanford, CA*). 2016
Travel Fellowship Grant Award, USNC-URSI North American Radio Science Meeting (*Boulder, CO*). 2016