Los Alamitos, CA
yuyenchang.astro@gmail.com
linkedin.com/in/changyuyen
yuyenchang.github.io

Yu-Yen Chang

Experienced data science researcher with a PhD in astrophysics. Proficient in statistics, modeling, machine learning, and programming, with a proven track record of data-driven insights.

Experience

- **Computational Scientist**, Turion Space, USA 01/2025 - Present
  - Apply advanced computer vision to extract insights from satellite imagery and synthetic data.
  - Design data fusion pipelines to integrate multi-spectral, temporal, and contextual data.
  - Optimize satellite trajectory using numerical methods for mission planning.
- **Associate/Assistant Professor**, Physics, NCHU, Taiwan 02/2020 - 01/2025
  - Led research group in classifying, clustering, and predicting diverse data with >80% performance.
  - Achieved >85% precision using cloud computing to investigate physical properties of galaxies.
  - Analyzed, simulated, and visualized >1M data sets from >30 databases, contributing to research.
  - Mentored >10 students and postdoctoral researchers to work on astrophysics and data science.
  - Delivered >10 lectures and >50 public speaking, and published >40 papers (citations>5000).
- **Insight Data Science Fellow** (20A.DS.SV), INSIGHT, USA 01/2020 - 03/2020
  - Discovered societal concerns from over 100K survey responses with Elucd company.
  - Provided location-specific living information for customers with ∼80% performance.
  - Utilized Natural Language Processing to capture and cluster unstructured comments.
  - Combined text and geographic information to enhance trust and safety.
- **Postdoctoral Research Fellow**, ASIAA, Taiwan 10/2016 - 01/2020
  - Made breakthroughs in understanding active galaxies by XGBoost and Keras algorithms.
  - Interpreted different types of super-massive black holes and reached >80% performance.
  - Conducted comparisons of galaxy sizes using multi-wavelength (>30 bands) information.
  - Inspected galaxy evolution with >20 datasets from X-ray, UV, visible, IR, to radio surveys.
- **Postdoctoral Research Fellow**, CEA-Saclay, France 10/2014 - 09/2016
  - Created a catalog for 500K+ distant galaxies with state-of-the-art decomposed models.
  - Evaluated sizes differences ($>5\sigma$) between active and non-active galaxies by image processing.
  - Obtained observational data by writing and submitting successful telescope proposals.
  - Established statistical connection between active galaxy, star formation and galaxy morphology.
- **Postdoctoral/Graduate Research Fellow**, MPIA, Germany 09/2010 - 06/2014
  - Generated an 800K+ galaxy catalog by implementing Bayesian and chi-square fitting techniques. ∘ Reconstructed 3D shapes of galaxies by their 2D projected images.
  - Demonstrated differences (P_{KS} <0.05) between nearby and distant galaxies by modeling.
  - Unveiled structural and size evolution of galaxies over 11Gyr with interdisciplinary teams.

Education

- **Ph.D.**: Astronomy, Heidelberg University, Germany 12/2013
- **M.S.**: Physics, National Taiwan University, Taiwan 06/2010
- **M.S.**: Radio Astronomy and Space Science, Chalmers University of Technology, Sweden 01/2009
- **B.S.**: Communication Engineering, National Chiao-Tung University, Taiwan 06/2007

Skills

∘ Computer Vision ∘ Data Modeling and Analysis ∘ Data Visualization ∘ Cloud Computing ∘ Simulation
∘ Machine Learning ∘ Statistics ∘ Scientific Computing ∘ Public Speaking ∘ Mentorship ∘ Research
∘ Image processing ∘ Deep Learning ∘ Natural Language Processing ∘ Dimensionality Reduction
∘ Programming: Python, SQL, IDL, MATLAB, Mathematica, C, HTML/CSS, Git, & LaTeX
∘ Packages: Matplotlib, NumPy, SciPy, Pandas, LightGBM, XGBoost, Keras, NLTK, & scikit-learn