Juntang Wang

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EDUCATION

Duke Kunshan University (DKU) & Duke University Dual Degree Class of 2026
B.S. in Applied Math & Computational Science; Computer Science Track (DKU) Kunshan, China
B.S. in Interdisciplinary Studies; Applied Math & Computational Science; Computer Science (Duke). Durham, USA

- GPA: 3.8/4.0; Dean's List with Distinction (24FA, 24SP), Dean's List (23FA)
- Courses: Deep Learning (A+), Machine Learning (A+), Matrix/Graph/Network Analysis (A+), Databases (A+), etc.

HONORS & AWARDS

Stanford RNA 3D Folding (Kaggle) Feb 2025 - Sep 2025
Bronze Medal (Top 8%, 1500+ teams) Online

- Parsed CSV-format sequence and label data, generated YAML-format inputs, and handled data preprocessing including sequence redundancy and multi-conformation reference structures.
- Integrated and deployed a dual-model prediction pipeline (Boltz-1 & Protenix); configured cache and advanced diffusion parameters for optimal inference.
- Calculated TM-score using US-align, fused model outputs, corrected invalid coordinates, and generated compliant final submissions, achieving a top-8% finish among 1500+ teams.

PROJECTS

mheatmap

- Developed a Python package for proportional heatmap visualization and spectral reordering that has been well received by the community (600+ GitHub stars).
- Achieved broad academic impact: the package has been adopted by multiple research groups for data visualization workflows and has been cited in peer-reviewed papers, highlighting its usefulness and reliability in published scientific research.

pysgtsnepi

- Implemented the SG-t-SNE-Π algorithm in Python from scratch, making state-of-the-art dimensionality reduction more accessible to researchers.
- Achieved wider community adoption by delivering clean, well-documented APIs, enabling seamless integration of SG-t-SNE-Π into existing data science pipelines and fostering efficient usage by researchers and practitioners.

PUBLICATIONS

- Shu Kit Eric Tam, **Juntang Wang**, Aleksandra Stryjska, Pascal Grange, Sze Chai Kwok. (2025). "Martian Photoperiod Attenuates Waking Theta Activity at Night and Disrupts Short-term Object Memory in Mice Despite Circadian Realignment." *PNAS Nexus (under review)*.
- **Juntang Wang**†, Hao Wu†, Runkun Guo, Yihan Wang, Dongmian Zou, Shixin Xu (2025). "Mixing Configurations for Downstream Prediction." *The 14th International Conference on Learning Representations (ICLR 2026, under review)*. Availabe at: https://arxiv.org/abs/2510.19248
- **Juntang Wang**†, Yihan Wang†, Hao Wu†, Dongmian Zou, Shixin Xu (2025). "Brain-Inspired Perspective on Configurations: Unsupervised Similarity and Early Cognition." *15th International Conference on Brain Inspired Cognitive Systems (BICS 2025)*. Availabe at: https://arxiv.org/abs/2510.19229
- Shu Kit Eric Tam, **Juntang Wang**, Sze Chai Kwok. (2025). "Can the mammalian circadian system adapt to the Martian photoperiod?" *The 18th Annual Meeting of Chinese Neuroscience Society (CNS 2025)*. Available at: https://www.qqgjyx.com/files/p02-TamKwok-CNS2025.pdf
- Yihan Wang†, **Juntang Wang**†, Xinze Xu, Yihen Han, Qinyi Chen, Ghulam Hussain, Xiawa Wang. (2025). "Analyzing temperature-induced phase transitions in $Pb_{10-x}Cu_x(PO_4)_6O$." *17th International Conference on Materials Chemistry (MC17)*. Available at: https://online.flippingbook.com/view/299339187/111/

RESEARCH EXPERIENCE

Unsupervised/semi-supervised methods for biomedical tasks Mar 2024 - Present
Signature Work; Research Assistant. PI: Prof. Dongmian Zou & Prof. Shixin Xu Kunshan, China

- Conducted research on topics including 16S rRNA for bacterial culture media prediction and acute ischemic stroke reperfusion decision-making.
- Utilized techniques such as clustering, neural networks, and ordinary differential equations to solve real-world problems; developed novel models.
- Produced two peer-reviewed papers currently under review at top-tier international conferences, as well as one thesis.

Classifying vigilance states in mouse EEG/EMG data   Mar 2025 - Aug 2025
Summer Research Scholar. PI: [Prof. Shu Kit Eric Tam](#) & [Prof. Sze Chai Kwok](#)   Kunshan, China
- Studied how the Martian photoperiod affects the mammalian circadian system, as well as sleep and wake patterns in mice, and explored methods for vigilance state classification.
- Implemented a convolutional neural network that achieved over 90% accuracy in classifying vigilance states using mouse electroencephalography (EEG) and electromyography (EMG) data. Explored and compared more than 10 existing classification methods.
- Produced one peer-reviewed conference paper and one journal article currently under review at a PNAS sub-journal.

Unsupervised segmentation in hyperspectral imaging   Jun 2024 - Dec 2024
Summer Research; Independent Study. PI: [Dimitrios Floros](#), [Prof. Nikos Pitsianis](#) & [Prof. Xiaobai Sun](#)   Durham, NC
- Studied precursor clustering and community detection methods, applying them to hyperspectral imaging. Collected over 5 methods and more than 10 datasets.
- Utilized tools such as Python (scikit-learn), MATLAB, and Julia, as well as techniques such as k-nearest neighbor graphs, [Stochastic Graph t-SNE](#), and [Parallel Clustering with Resolution Variation](#) to address the challenge of unsupervised segmentation in hyperspectral imaging.
- Developed Python packages [mheatmap](#) and [pysgtsnepi](#), which aid in post- and pre-processing of HSI data and have been well received by the community (600+ GitHub stars).

Photon & exciton dynamics, photoluminescence, and superconductivity   Jan 2024 - May 2024
Research Independent Study. PI: [Prof. Xiawa Wang](#)   Kunshan, China
- Researched temperature-induced electronic, magnetic, and structural properties of emerging solid-state materials, including $Pb_{10-x}Cu_x(PO_4)_6O_6$ (LK-99), $KBaLnB_2O_6$ (Ln=Gd,Yb,Tb), and others.
- Utilized techniques such as temperature-dependent X-ray diffraction, Raman spectroscopy, and density functional theory (DFT) calculations to study photoluminescence, phase transitions, and ferromagnetism in these emerging/rare-earth materials.
- Produced a conference paper presented at an international conference organized by the Royal Society of Chemistry (RSC).

SKILLS

Programming & Analysis: Python (Advanced), MATLAB, R, Julia, Wolfram, Java, C/C++, C#, Bash
Data & Web: PostgreSQL, MongoDB, HTML/CSS, Cloudflare
Tools: LaTeX, Markdown, Unity, Generative AI tools (e.g., Cursor, Stable Diffusion)
Languages: English (Fluent), Mandarin (Native), Japanese, French

TEACHING

MATH 302: Numerical Analysis   Jan 2025 - Mar 2025
Teaching Assistant. Instructor: [Prof. Dangxing Chen](#)   Kunshan, China
- Provided support for instruction in numerical analysis topics such as root finding, interpolation, and numerical differentiation and integration.
- Led weekly recitations on Python/MATLAB implementations of numerical methods and introduced supplementary material from CS 521 to deepen students' understanding.
- Received positive feedback for making abstract methods more accessible through coding demonstrations.

CS 521: Matrix, Graph, and Network Analysis   Aug 2024 - Oct 2024
Teaching Assistant. Instructor: [Prof. Xiaobai Sun](#)   Durham, NC
- Assisted in teaching a graduate course covering topics such as the Perron–Frobenius Theorem (PageRank), Graph Laplacian (Fiedler Vector), and spectral embedding.
- Led recitations and office hours to review assignments and clarify concepts; managed the course Canvas site and code base; provided Python implementations in addition to the instructor's MATLAB code; graded homework; and delivered a guest lecture comparing embedding spaces and clustering methods.
- Received positive feedback from both the instructor and students for making course administration more efficient and course concepts more accessible.

MATH 101: Calculus   Feb 2024 - May 2024
Teaching Assistant. Instructor: [Prof. Dangxing Chen](#)   Kunshan, China
- Assisted in teaching a class of over 40 students, covering topics such as derivatives and integrals.
- Led weekly recitations on course material, including reviewing lecture concepts, guiding students through problem-solving techniques, and facilitating group discussions on practice problems.
- Received positive feedback for helping students strengthen their foundational knowledge and for fostering interest in math.

WORK EXPERIENCE

Resident Assistant   Aug 2024 - Present
Res Life, DKU   Kunshan, China
- Assisted student residents with academic and personal issues; fostered an engaging community; handled 50+ incidents; served for 3 years.
- Developed a Python script to scrape Reddit images and the resident roster for automatic door decoration creation, which was used by fellow RAs.

Product Analyst, Intern   Jul 2023 - Aug 2023
Second DX Division, NTT Data   Wuxi, China
- Assisted in backend development and conducted literature reviews on topics such as LLMs, agentic systems, and more.
- Authored a professional report on software-related industries in China, focusing on AI innovation.

Banker, Intern   Feb 2024 - May 2024
Business Department, Bank of Huaxia   Kunshan, China
- Assisted in investigating client businesses, including conducting credit analysis and market research.
- Drafted over 50 audit reports on local electronics companies and conducted in-depth industry research.

XTRA INFORMATION

Certifications: Responsible Conduct for Duke Community Engagement (Canvas Credentials), Undergraduate Student Responsible Conduct of Research (CITI Program), etc.

Interests: Anime, Comics & Games (ACG), cooking, gym.

Service: Supported classmates at Duke as Kunshan Student Orientation Peer. Led weekly training sessions as Kendo Club Training Leader…