

# Ruei-Jie (Rachel) Chang

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## Education

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| <b>The University of Chicago (UChicago)</b> , Illinois, US<br>M.A. in Digital Studies of Language Culture and History (DIGS)<br>Two-year curriculum in Digital Texts and Culture<br>GPA: 4.0/4.0 (2025-2026) | 2025 – expected June 2027 |
| <b>National Taiwan University (NTU)</b> , Taipei, Taiwan<br>B.A. in Foreign Languages and Literatures (DFLL)<br>Women's and Gender Studies Research Program<br>GPA: 3.98/4.3                                 | 2020 - 2025               |
| <b>University of California, Santa Barbara (UCSB)</b> , California, US<br>College of Letter and Science (UCEAP Program)<br>GPA: 4.0/4.0                                                                      | 2023 - 2024               |
| <b>Lycée International des Pontonniers</b> , Strasbourg, France<br>High School Exchange Program                                                                                                              | 2019                      |

## Honors and Awards

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| 2025        | <b>Chancellor's Fellowship Award</b> , University of California, Santa Barbara, English PhD Program, Prestigious fellowship package offered to top admitted PhD students ( <i>declined</i> )                                                 |
| 2025        | <b>Dean's Scholarship</b> , The University of Chicago, M.A. in Digital Studies of Language, Culture, and History (DIGS), Two-year tuition scholarship: \$22,500 in Year 1, 50% tuition remission in Year 2                                   |
| 2025        | <b>English Department Scholarship</b> , New York University, M.A. in English<br>50% tuition award ( <i>declined</i> )                                                                                                                        |
| 2025        | <b>Division of the Humanities Scholarship</b> , The University of Chicago, M.A. Program in the Humanities (MAPH), \$12,000 tuition award on admission ( <i>declined</i> )                                                                    |
| 2025        | <b>Asia Regional Finalist</b> , Erupture Global Hackathon<br>Built an interactive, immersive web platform incorporating LLMs to foster safe peer communication and counseling support, developed under supervision from licensed counselors. |
| 2024        | <b>1<sup>st</sup> Prize in short story contest</b> , UCSB Mellichamp Initiative in Mind & Machine Intelligence                                                                                                                               |
| 2023 - 2024 | <b>Dean's Honors</b> , University of California, Santa Barbara<br>Fall GPA: 4.0/4.0   Winter GPA: 4.0/4.0   Spring GPA: 4.0/4.0                                                                                                              |
| 2023        | <b>National Taiwan University Outgoing Exchange Student Scholarship</b>                                                                                                                                                                      |

2<sup>nd</sup> of 577 Contestants | Received a grant of 150,000 NTD.

2021 **Dean's List Award**, National Taiwan University

## Research Interests

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Literature and Technology | Interpretive AI | Digital Humanities | Science and Technology Studies | Queer and Gender Studies | Critical AI | Media Studies | Epistemology of Large Language Models | Science Fiction

### Relevant Coursework:

AI and the Humanities/ Digital Texts I: Corpus Building and Corpus Statistics/ Digital Text II: Natural Language Processing and Deep Learning/ Data Visualization for the Humanities/ Digital Humanities Practice/ Science Fiction Short Stories/ Critical AI/ New Media Studies/ Selected Readings in Queer and Cultural Thought/ Seminar on Science Fiction and Film/ Local Queer Literatures and Virtual Communities/ Digital Text Analysis/ Statistics

### Relevant Extracurricular Coursework:

- Fundamentals of Deep Learning, Nvidia
- HTML5, CSS3, jQuery, Bootstrap Web Design, NTU Information System Training Program
- Introduction to Statistics, Stanford University, Coursera
- Media Ethics & Governance, University of Amsterdam, Coursera

## Research Experience

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**Research Assistant in Computational Analysis**, EALC, UChicago (Prof. Hoyt Long) 2026

- Conducted evaluation of LLM-generated literary narratives against benchmark rubrics, assessing LLM's capacity for narrative and historical-fiction generation.

**Research Assistant**, Department of Economics, NTU 2024

- Conducted research on U.S. foreign policy, focusing on international relations and the impact of sanctions related to human rights violations and undemocratic practices.

## Research Projects and Essays

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*Small-Corpus-Guided Steering of Base Model Generation (2026)*

- Built a 58-text corpus of Taiwanese queer literature and combined retrieval-augmented generation with activation steering to measurably shift a base LLM's generative register toward the corpus, with no fine-tuning required.
- Identified the model layer most sensitive to the corpus signal via classifier probing, and demonstrated statistically significant shifts ( $p < 0.0001$ ) replicable on consumer hardware.

*Reading Stance Parameterized: LLM Agents as Proxies for the Literary Encounter (2026)*

- Parameterized seven LLM reading agents with contrastive reader-response stances (efferent/aesthetic, identification/estrangement, surface/suspicious) across 15 canonical, pulp, and LLM-generated science fiction texts to test whether reading orientation produces measurably different readings of the same text.

*General Map of the Literary Encounter (2026)*

- Developed a conceptual framework mapping the full architecture of the literary encounter (medium, text, intertextuality, reader, encounter, emergence) as a scaffold for a federated

computational approach to literature, situating the reading-stance project above as one proof-of-concept node within it.

*Computational Analysis on Machine Consciousness in Science Fiction (2025)*

- Built a curated corpus of 115 science fiction texts spanning 1816–2022 and ran four independent computational methods (NMF topic modeling, SBERT/UMAP embeddings, zero-shot classification, fine-grained emotion detection) to test whether the genre's depiction of machine consciousness is uniformly dystopian.
- Found convergent evidence across all four methods for a "care/threat axis" structuring the genre, rather than a simple decline into doom.

*Material Configurations of AI-Generated Texts (2025)*

- Analyzed material-computational and connectionist processes of AI-generated texts through an examination of GPT-2's open-source framework, focusing on tokenization, embeddings, and transformer architectures
- Developed new materialist theoretical framework to understand textual emergence in Large Language Models beyond traditional poststructuralist approaches, emphasizing media/um specificity and materiality

*Mamba: Exploring the potential Exacerbation of sociopolitical issues among Foundation Models (2024)*

- Critiqued the sociopolitical implications, discrimination and problematic logic in data collection, processing, and deployments of AI models, with a close examination of bias in the Mamba architecture as a case study.

*Intelligence After Anthropocentrism: The Imperative of New Languages and Frameworks for Human and Machine in Outpaced Realities (2023)*

- Proposed new linguistic and theoretical frameworks to bridge the ontological and epistemological gaps between advanced AI systems and humans, challenging the dichotomy between intelligence and non-intelligence in human-machine symbiosis.

## Technical Projects

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*LLM Style Observatory (2026)*

- Built an interactive dashboard comparing stylometric signatures (lexical diversity, nominalization rate, sentence rhythm) across GPT-4o, Claude, Gemini, and local open-weight models, finding a stable, architecturally determined gap in lexical diversity between models.

*Open Research Assistant (2026)*

- Developed a multi-source research tool aggregating open academic APIs and archives (OpenAlex, Semantic Scholar, arXiv) with an LLM-generated reading-list mode and Zotero integration, designed to help researchers locate full texts rather than rely on AI-generated summaries.

## Leadership

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**President of Student Association, NTU Foreign Languages and Literatures**

2022 – 2023

- Represented the Department of Foreign Languages and Literatures student body in department and university meetings.
- Coordinated information, opinions, and disputes between the department and the students.
- Led, organized, and publicized multiple events with more than a hundred participants.

- Freshman Orientation Director**, NTU Foreign Languages and Literatures 2022
- Directed all aspects of freshman orientation, including staff recruitment, task assignments, pre-event logistics and content planning.

## Languages and Skills

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Mandarin: First Language | English: High Proficiency (IELTS 8.0, L 8.5, R 8.5) | French: Advanced | Latin: Intermediate | Taiwanese: Intermediate | Japanese: Basic | Italian: Basic | Python | HTML5 | CSS | JavaScript | Svelte | Neo4j | SQLite

## Work Experience

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- Private Tutor**, International Baccalaureate Diploma Program, Taipei Kuei Shan School 2024
- Instructed a 10th-grade student in Individuals and Societies (I&S) within the IB curriculum, with a focus on English academic writing, history, and geography.

- Private Tutor**, International Program, Kang Chiao International School 2023
- Mentored an 8th-grade student in history and social studies within the international program curriculum.

- Academic Counselor**, NTU Foreign Languages and Literatures 2023
- Supported students with disabilities at NTU in European (1350-1800) and Classical Western literature classes by providing coursework assistance and personalized learning strategies.

- Private Tutor**, Secondary Bilingual School, Taipei Fushing Private School 2022
- Taught 3rd, 4th, and 8th-grade students in English writing, history, and geography, following the U.S. curriculum.