

# XI(SEAN) CHEN

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## EDUCATION

<b>University of Massachusetts Amherst</b>	<b>Amherst, MA</b>
• PhD in Computer Science (GPA: 3.9/4)	2019-2025
<b>Central South University</b>	<b>Changsha, China</b>
• B.E. in Computer Science (GPA: 3.9/4)	2014-2018

## EXPERIENCE

<b>Pretraining &amp; Scaling – Amazon AGI Foundations</b>	<b>Sunnyvale, CA</b>
<b>Applied Scientist (L5)</b>	2025.7 - present
• Optimized pre- and mid-training recipes by scaling law for Amazon's base models ( <b>up to ~200B parameters</b> ).	
• Diversified reasoning data by contrastive learning and multi-teacher knowledge distillation for mid-training.	
• Refined and standardized evaluations across frontier foundation models with shot/prompt sensitivity analysis.	
<b>Amazon (AGI Foundations)</b>	<b>Seattle, WA</b>
<b>Applied Scientist Intern</b>	2024.7 - 2024.10
• Applied parameter efficient LLM training with Quantized LoRA for scalable model adaptation.	
• Devised a model merging framework by aligning activation to accelerate multi-task LLM learning.	
• Implemented adaptive online learning with sample re-weighting for continuous LLM improvement.	
<b>University of Massachusetts Amherst</b>	<b>Amherst, MA</b>
<b>Research Assistant</b>	2019.9 - 2025.6
• Designed an efficient cluster-aware LLM judge framework for online event extractions from temporal graph.	
• Zero-shot learning on LLM with an event retrieval pipeline from global multilingual news database.	
• Built a refined transformer-based global news graph with trillions of edges for event detection, recommendation.	
• Developed the largest multilingual news similarity dataset, leveraging active learning for retrieval and ranking.	
<b>Zhipu AI (Chinese OpenAI, IPO with \$10B market valuation)</b>	<b>Beijing, China</b>
<b>Research Intern</b>	2017.6 - 2018.12
• Searched and rank scholars with heterogeneous random forest (deployed on prestigious AI platform Aminer).	
• Clustered and visualize temporal scientific topics with refined genetic algorithm.	

## PROJECT

<b>Nova Foundation Model Training Optimization</b>	<b>(Artificial Analysis Intelligence Index: 62)</b>
• Optimized pre&mid-training recipes for Amazon's Nova base models, supporting official production release.	
• Designed efficient TB-scale data preparation pipelines to support high-throughput generation.	
• Analyzed optimization dynamics and failure modes through systematic ablations of data mixtures.	
<b>Reasoning Data Diversification in Mid-Trainin</b>	<b>(Improved 16% Coding Performance)</b>
• Rewrote noisy webcrawl data with LLM judge to summarize reasoning information.	
• Designed contrastive knowledge distillation strategies to generate diversified reasoning data.	
• Quantified data reasoning depth with Essential-web classifier to optimize mid-training recipe.	
<b>Cross-Model Evaluation and Benchmarking Framework</b>	<b>(Aligned up to 17% evaluation gap)</b>
• Standardized evaluations across frontier foundation models with shot/prompt robustness check.	
• Enabled rigorous cross-model comparison through unified metrics and analysis workflows.	
• Generated evaluation insights to inform model selection and training roadmap decisions.	
<b>Merge LLM with Online Activation Alignment</b>	<b>(Improved 10% math performance)</b>
• Developed an activation alignment framework to merge LLMs across diverse tasks (math, coding, medical).	
• Adapted activation weight for LLM online learning during parameter-efficient training and sampling.	
<b>Efficient Cluster-wise LLM Judge for Event Identifications from Polls</b>	<b>(Improved 10x data efficiency)</b>
• Designed a cluster-aware active learning framework to detect temporal events from X poll texts.	

- Modeled the evolution of social discourse by graph-based topic tracking and statistical analysis.

## Global Multilingual News Graph Learning with Transformers

- Devised a global news retrieval system, generating trillion-scale relations with dense embeddings and indexing.
- Built rank models for similar multilingual news using rules-based and active learning classifiers.

## LLM Question Answering Generation for Identifying Disasters

- Engineered zero-shot learning prompts to optimize LLM precision and recall in news event retrieval system.
- Built regression models to quantify country factors with greedy feature selection and event clustering.

## SELECTED PUBLICATION

### Amazon Nova 2: Multimodal reasoning and generation model

Amazon AGI Foundations. 2025.

### Identifying and Investigating Global News Coverage of Critical Events Such as Disasters and Terrorist Attacks

**Xi Chen\***, Erica Cai\*, Reagan Keeney, Ethan Zuckerman, Brendan O'connor, Przemyslaw Grabowicz. International AAAI Conference on Web and Social Media (**ICWSM, 9% Direct Accept**), 2025.

### Efficient Cluster-aware Large Language Model Judge for Event Identification from Social Polls

**Xi Chen**, Mayank Bumb, Vishal Kalakonnavar, Przemyslaw Grabowicz. To appeal, 2025.

### Global News Synchrony and Diversity During the Start of the COVID-19 Pandemic

**Xi Chen**, Scott Hale, David Jurgens, Mattia Samory, Ethan Zuckerman, Przemyslaw Grabowicz. International World Wide Web Conference (**The Webconf, 15% Accept**), 2024.

### A Multilingual Similarity Dataset for News Article Frame

**Xi Chen**, Scott Hale, David Jurgens, Mattia Samory, Przemyslaw Grabowicz. International AAAI Conference on Web and Social Media (**ICWSM, 18% Accept**), 2023.

### Multilingual Document-level Similarity

**Xi Chen**, Ali Zeynali, Chico Camargo, Fabian Flock, Devin Gaffney, Przemyslaw Grabowicz, Scott Hale, David Jurgens, Mattia Samory. International Workshop on Semantic Evaluation @ **NAACL**, 2022.

## SKILL

LLM: Pre&mid-training, Parameter-efficient fine-tuning, Model merging, RLHF, Retrieval-augmented generation(RAG).  
 Search & Retrieval: News similarity search, Transformer-based retrieval models, Semantic indexing.  
 Recommendation Systems: Graph modeling, Active learning for ranking, Multilingual content recommendations.  
 Machine Learning & Optimization: Event detection, Time-series analysis, Probabilistic modeling.

## SERVICE

### Program Member:

- NAACL(2023)
- ICWSM(2023, 2024)
- SEMEVAL (2022, 2023, 2024)
- IC2S2 (2022, 2023, 2024)

## HONOR

NSF Student Travel Award, 2024

UMass CICS best portfolio finalist, 2023.

Research presented at top-tier computer science venues (Webconf, NAACL, ICWSM, TADA, IC2S2).

Nomination for Chinese Exceptional Student (1/6500 ISchool undergrads and grads), 2018.

Ranked global Top50 of Autochess players (50/millions, a world-class strategy game).