

# SEEWON CHOI

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## EDUCATION

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### University of Pennsylvania

Ph.D. in Computer and Information Science

**Advisor:** Rajeev Alur

Aug 2023 - Present

*Philadelphia, US*

### University of Cambridge

B.A. in Computer Science

**Dissertation:** *Encoding Representations of Propositional Logic*

**Supervisor:** Mateja Jamnik

Oct 2019 - June 2022

*Cambridge, UK*

## RESEARCH STATEMENT

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While AI models have achieved remarkable performance, their adoption in high-stakes domains such as healthcare remains limited by challenges in trustworthiness. My research addresses this gap by developing interpretable and robust models that combine the strengths of neural learning and symbolic reasoning—an approach known as neurosymbolic AI. I work on scaling neurosymbolic learning frameworks to complex, real-world scenarios, and applying them to clinical settings where transparency and reliability are essential. Currently, I am using these methods for the early diagnosis of critical conditions such as sepsis and cardiac arrest, ensuring that model predictions are grounded in clinical knowledge.

## PREPRINTS & PUBLICATIONS

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### KardiaLM: A Foundation Model for ECG Comprehension 🔗

Neelay Velingker\*, **S Choi**\*, Mayank Keoliya\*, Alaia Solko-Breslin\*, Rajeev Alur, Mayur Naik, Eric Wong

### Stable Prediction of Adverse Events in Medical Time-Series Data 📄 🔗

Mayank Keoliya\*, **S Choi**\*, Rajeev Alur, Mayur Naik, Eric Wong

### CTSketch: Compositional Tensor Sketching for Scalable Neurosymbolic Learning 📄 🔗

**S Choi**\*, Alaia Solko-Breslin\*, Rajeev Alur, Eric Wong

*NeurIPS 2025*

### Data-Efficient Learning with Black-box Programs 📄 🔗 🔗

Alaia Solko-Breslin, **S Choi**, Ziyang Li, Neelay Velingker, Rajeev Alur, Mayur Naik, Eric Wong

*NeurIPS 2024*

### Generation of Visual Representations for Multi-Modal Mathematical Knowledge 📄 🔗 🔗

Lianlong Wu\*, **S Choi**\*, Daniel Raggi\*, Aaron Stockdill, Grecia Garcia Garcia, Fiorenzo Colarusso, Peter C.H. Cheng, Mateja Jamnik

*AAAI 2024 Demo*

## AWARDS

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- Richard Foulke Day Memorial Fellowship (*University of Pennsylvania*, 2023)
- Rosemary Murray Scholarship (*University of Cambridge*, 2019, 2020, 2021)

## TEACHING EXPERIENCE

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- TA, CIS 5200 Machine Learning (*University of Pennsylvania*, Fall 2025)