Kostadin Devedzhiev

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Education

University of Cambridge Cambridge, UK | October 2025 – June 2026

Master of Philosophy in **Human-Inspired Artificial Intelligence**

Stony Brook University Stony Brook, NY | August 2018 – May 2022

Bachelor of Science in **Computer Science** and **Applied Mathematics & Statistics**
Specialization in **Artificial Intelligence and Data Science**
Computer Science Honors Program
GPA: 3.89 / 4.00 | **Summa Cum Laude**

Research Interests

My research centers on interactive machine learning, active learning strategies, and the design of intelligent systems that collaborate effectively with human experts. I focus on **human-in-the-loop multi-agent frameworks**, model-driven annotation, and 3D perception models for complex spatial data. I am interested in how to build scalable infrastructures that improve data quality, accelerate iteration, and support open scientific research. Beyond these technical areas, I am motivated by applications of AI that contribute to sustainability and responsible technological development.

Work and Research Experience

Software Engineer, *Stellar Cyber* San Jose, CA | May 2022 – September 2025

- **Built** a **human-augmented, multi-agent autonomous** security operations system that triages incoming cases by analyzing related alerts with LLMs and generating concise, user-friendly summaries. This system was showcased as Stellar's main highlight at the **RSA 2025** and **Black Hat 2025** cybersecurity conferences.
- **Developed** the chat interface, session management, and visualization suite for the Open XDR Investigator, a GenAI-powered cybersecurity copilot that enables data summarization and multi-chart visualizations of Elasticsearch queries and aggregations, all driven by natural language prompts. This was also the focus of Stellar at **RSA 2024** and **Black Hat 2024**.
- **Implemented** bidirectional WebSocket communication, reducing average response times by **70%** through parallel data and LLM requests, and providing real-time progress updates.
- **Prepared** knowledge-enriched GPTs capable of visualizations, API calls, and script execution. These GPTs supported log analysis, product metrics evaluation, connector normalization, and data source classification.
- **Implemented, maintained, and managed** the product and user analytics framework using Mixpanel, generating detailed reports to guide UX design, optimize data storage, and uncover user behavior patterns.
- **Maintained** over **90%** test coverage, reducing bug filings on owned components by **34%** year-over-year.

NLP Research Assistant, *Stony Brook University* Stony Brook, NY | August 2021 – May 2022

- **Designed** Recursive QA—a theoretical framework for generating formal representation annotations of natural language specifications using a guided question-answering methodology.
- **Generated** question-answer pairs from the constituency parse trees and filtered repetitive options using affinity clustering based on Levenshtein distance.
- **Developed** an interactive full-stack web application integrating the question-answering framework, enhancing annotation quality control with features like account management, work history tracking, and graph visualizations.
- **Improved** workflow efficiency by reducing cognitive load and enhancing annotation consistency, achieving an annotator agreement rate of over **80%**, with experienced users completing annotations in about 30 seconds.

Artificial Intelligence Research Assistant, *University of Hawaii at Hilo* Hilo, HI | June 2020 – August 2020

- **Developed** a threshold estimation heuristic using IoU and F1 score metrics to optimize acceptance of real-time CNN proposals for detection and classification tasks in an image annotation UI.
- **Enhanced** a **human-in-the-loop**, semi-automatic image annotation tool for identifying invasive species in drone imagery, enabling progressive assistance as accuracy increases during real-time training.

Creative Electronic Media Assistant, *University of Hawaii at Hilo* Hilo, HI | Mar 2020 – May 2020

- **Developed** an API to control a holographic fan, enabling integration with external applications.

- **Created** the website for Data Viz, a data visualization lab, showcasing media projects through videos and photos.
- **Installed** and **configured** operating systems and software, and **maintained** computers and 3D printers in labs.

Software Engineering Intern, *Vivansa* Sofia, Bulgaria | June 2019 – August 2019

- **Enhanced** the front end of a CRM application to improve UI components and user experience.
- **Identified and resolved** erroneous database entries, **implemented** data cleaning procedures, and **analyzed** root causes to prevent future inconsistencies.

Teaching Experience

AI Leadership Mentor, UniHawk Kuwait City, Kuwait | December 2025

- Mentor high school students through hands-on projects in a week-long bootcamp to build AI apps, promoting creativity, technical fluency, and confidence with AI tools.

Teaching Assistant, *Stony Brook University* Stony Brook, NY | August 2020 – May 2021

- **Supported** in teaching AMS 210: Applied Linear Algebra for two semesters.
- **Held** weekly office hours to assist students with coursework and **graded** assignments.

Linear Algebra Grader, *University of Hawaii at Hilo* Hilo, HI | March 2020 – May 2020

- **Graded** exams and assignments for MATH 311: Linear Algebra.
- **Provided** homework assistance to students, enhancing their understanding of linear algebra concepts.

Computer Science Grader, *University of Hawaii at Hilo* Hilo, HI | October 2019 – December 2019

- **Evaluated** programming assignments for CS 150: Introduction to Computer Science.
- **Assisted** students with homework to improve fundamental programming principles.

Publications

P-M Binder, **Kostadin G Devedzhiev**, Alexandra T Runyan. (2020). Motional emf generated by squeezing an elliptical conducting loop. *European Journal of Physics*, European Physical Society. https://doi.org/10.1088/1361-6404/ABB066

- **Developed** an algorithm to approximate the motional EMF induced in conducting elliptical loops with a controlled error margin using Faraday's law of electromagnetic induction.

Leadership Experience

Vertically Integrated Projects Member, *Stony Brook University* Stony Brook, NY | August 2020 – December 2021

- **Led** the Embedded ML team of three students. **Held** hands-on learning sessions on training artificial neural networks with TensorFlow and PyTorch for mechanical engineering students.
- **Embedded** an optimized convolutional neural network (CNN) on an Arduino Nano 33 BLE Sense microcontroller for real-time gesture recognition using accelerometer data.
- **Designed** the full pipeline—from data collection and preparation to model training, conversion, and deployment—achieving comparable accuracy to existing solutions while training on fewer users and generalizing to unseen users.

Projects

GONEXT

- **Developed** an in-game generative AI conversational assistant for *League of Legends*, capable of retrieving live game data, including information on all allies and enemies.
- **Delivered** customized game strategies, matchups, synergies, and item builds by providing real-time player and game data as context to LLMs.
- **Released** an open-source **MCP** server wrapping all Riot games League of Legends APIs and resources.
- **Designed** an intuitive interface to display game metrics, player match history, league rankings, and win rates.
- Prepared the app for production through caching, rate limiting, and optimized LLM chains.

I Want to Redistrict, *Senior Software Engineering Project*

- **Processed** the 2020 US Census data and utilized a supercomputer to generate viable state districting plans through a stochastic graph algorithm, considering political fairness, compactness, and other statistical metrics.
- **Developed** a web application for the visual and statistical analysis of equitable state districting plans.

Technical Skills

Fields of Expertise: Full Stack Development | Machine Learning | Data Science | NLP | HCI

Programming Languages: Python | JavaScript | Typescript | C

Frameworks and Databases: Angular | MongoDB | Elastic Search | FastAPI | LangChain | React | PyTorch | Pinecone