

# Kostadin Devedzhiev

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## Education

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### Stony Brook University

Stony Brook, NY | August 2018 – May 2022

Bachelor of Science in Computer Science, Applied Mathematics & Statistics

Specialization in Artificial Intelligence and Data Science

Computer Science Honors Program

GPA: 3.89 / 4.00 | Summa Cum Laude

## Research Interests

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**Software Engineer** specializing in **Natural Language Processing** and User Interface Design, with a passion for developing intelligent interactive systems. Dedicated to creating **human-inspired AI** and enhancing human-machine interaction through language, speech, and innovative interfaces.

## Work and Research Experience

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### Software Engineer, *Stellar Cyber*

San Jose, CA | May 2022 – Present

- **Developed** the chat interface, session management, and visualization suite for the Open XDR Investigator—a generative AI cybersecurity conversational copilot—including support for multi-chart visualizations of Elasticsearch queries and aggregations driven by natural language prompts.
- **Implemented** full-duplex, bidirectional WebSocket communication between the UI and ML server, reducing average response times by **70%** through parallel data and LLM requests, and facilitating real-time progress updates.
- **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 on ML-powered features, reducing bug filings by **34%** year-over-year and increasing feature ownership.

### 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 on 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 as little as **25 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 a UI.
- **Enhanced** a human-in-the-loop, semi-automatic image annotation tool for identifying invasive species in drone imagery, enabling progressive assistance as accuracy increased during real-time training.

### Creative Electronic Media Assistant, *University of Hawaii at Hilo*

Hilo, HI | Mar 2020 – May 2020

- **Developed** a Java-based 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 using React 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

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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 support 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

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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.

## Leadership Experience

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Vertically Integrated Projects Member, *Stony Brook University*

Stony Brook, NY | August 2020 – December 2021

- **Led** the Embedded ML team of three students, **conducting** 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

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GoNext, *Passion Project*

- **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 leveraging GPT-4 with Retrieval Augmented Generation (RAG), utilizing player and game data from the Riot API.
- **Designed** an intuitive interface to display game metrics, player match history, league rankings, win rates, and more in a web application built with React, Node.js, Express.js, MongoDB, and FastAPI.

I Want to Redistrict, Senior Software Engineering Project

- **Processed** the 2020 US Census data and leveraged a supercomputer to generate viable state districting plans using a stochastic graph algorithm, considering political correctness, compactness, and other statistical measures.
- **Developed** a web application for visual and statistical analysis of fair state districting plans.

## Technical Skills

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

Programming Languages: Python | JavaScript | Typescript | Java

Frameworks and Databases: Angular | MongoDB | Elastic Search | FastAPI | Pandas | React | TensorFlow | PyTorch