

# Pawan Jayakumar

 [github](#)  [Website](#)  [email](#)

## EDUCATION

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<b>University of California San Diego</b> <i>Master of Science in Computer Science</i>	Sept 2024 - Present GPA: 4.0/4.0
<b>University of Virginia</b> <i>Bachelor of Science in Computer Science</i>	Aug 2020 - May 2024 GPA: 3.83/4.0
<b>Thomas Jefferson High school for Science and Technology</b>	Aug 2016 - May 2020

## COURSEWORK

Software Engineering, Data Structures and Algorithm Design, Operating Systems, Machine Learning, Parallel Processing, Hardware Accelerators, Robotics, Probability theory, Linear Algebra

## EXPERIENCE

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<b>Pytorch</b>   <i>Open Source Software Engineer</i>	May 2024 - Sept 2024
<ul style="list-style-type: none"><li>Actively engaged in the development of <a href="#">TorchAO</a>, a library for performing architecture optimization for AI model inference and training by opening issues, performing code reviews, and updating documentation</li><li>Developed bit-packing algorithms to reduce memory cost of sub-byte quantized network weights by 2-4x</li><li>Created a new data type for low-bit quantization using tensor sub-classing and bit-packing.</li><li>Implemented Activation-aware Weight Quantization (AWQ) which is used by over 3400 models on Huggingface</li></ul>	
<b>Capital One</b>   <i>Software Engineering Intern</i>	June 2023 - Aug 2023
<ul style="list-style-type: none"><li>Designed and deployed a full-stack cloud application using React, GraphQL, and AWS Dynamo DB, which is used by over 15,000 monthly associates</li><li>Optimized local development build times by decoupling our service, saving 100+ hours of development time</li></ul>	
<b>Capital One</b>   <i>Software Engineering Intern</i>	Jun 2022 - Aug 2022
<ul style="list-style-type: none"><li>Designed and deployed a full-stack cloud application to track and display changes in vulnerability reports to Capital One associates using Angular, and a variety of AWS database management services</li><li>Negotiated with the product team, presented design choices that would improve customer experience, performed code reviews, and proactively asked for feedback</li></ul>	
<b>University of Virginia</b>   <i>Teaching Assistant</i>	Aug 2022 - Dec 2022
<ul style="list-style-type: none"><li>Led 100+ students in laboratory sessions and office hours by conducting code reviews and peer mentoring</li></ul>	

## PROJECTS

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<b>Temporal Downsampling for Byte-Transformers</b>	Sep 2024 - Dec 2024
<ul style="list-style-type: none"><li>Improved the accuracy of BERT-style byte level transformer by 30% on speech transcript classification benchmark using sequence dimension down sampling with convolutions</li><li>Outperformed subword-tokenizer methods when text contained misspelled words (improved robustness)</li></ul>	
<b>Policy Evaluation Benchmark</b>	Feb 2024 - August 2024
<ul style="list-style-type: none"><li>Constructed a testing harness for policy evaluation algorithms such as <a href="#">ROS</a> and <a href="#">BPS</a></li><li>Parallelized model training and inference on compute clusters using Slurm and <a href="#">Weights and Biases</a></li></ul>	
<b>Slider</b>	Mar 2022 - Mar 2023
<ul style="list-style-type: none"><li>Co-developed and published an <a href="#">award winning</a> puzzle game called <a href="#">Slider</a> which has over 4000 unique players</li></ul>	

## SKILLS

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**Languages:** Python, C/C++, CUDA, Triton, Bash, SQL, C#, JavaScript, HTML, CSS  
**Tools:** Github, Jenkins DevOps, Docker, Unix, Node, AWS, Copilot, JIRA  
**Frameworks:** PyTorch, React, Tensorflow, Angular, Rest, GraphQL, Tailwind