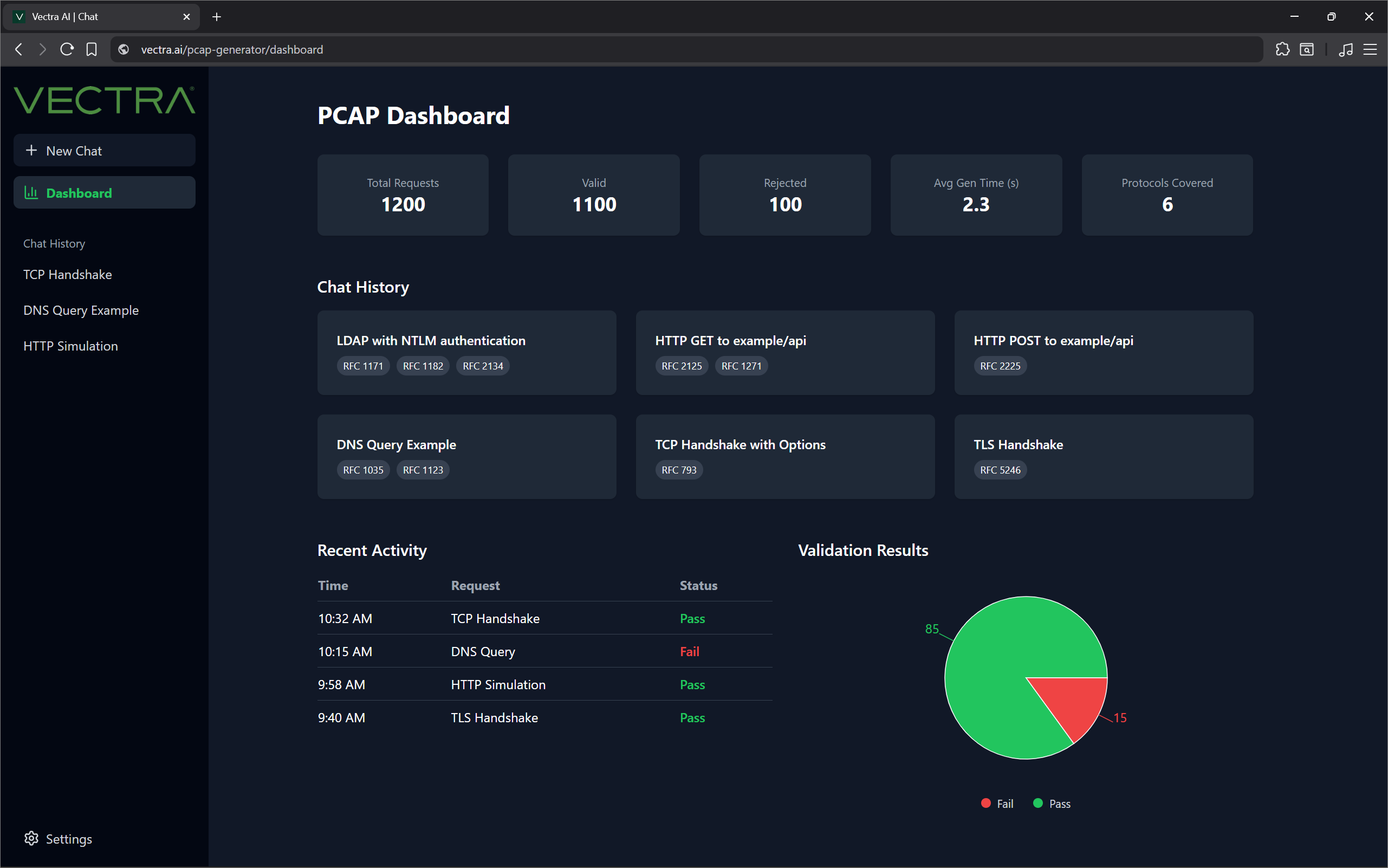
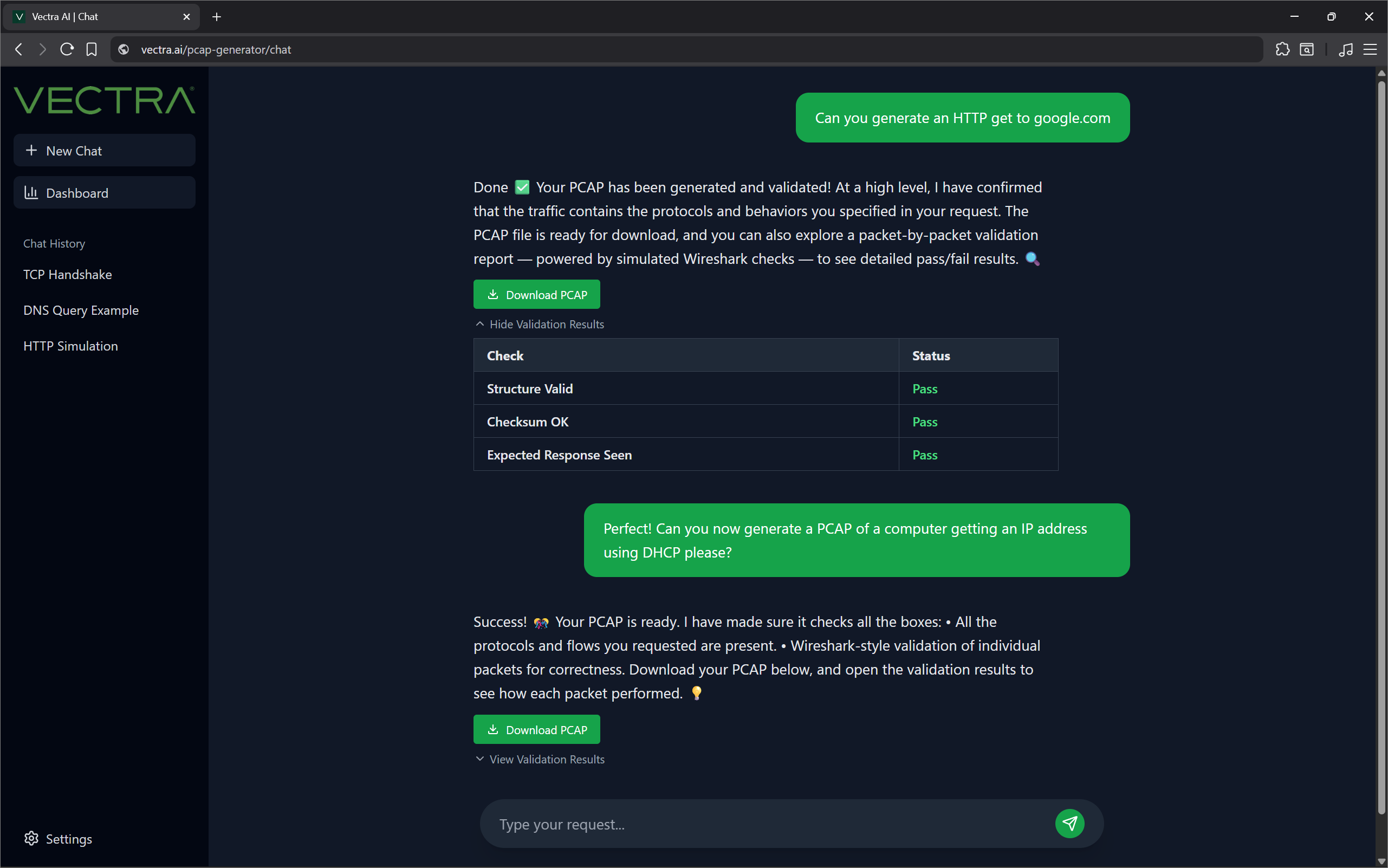
Design Day Booklet Team Page





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Vectra AI

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Vectra AI is a leader in the cybersecurity field, harnessing the power of artificial intelligence (AI) to provide clients with state-of-the-art threat detection and real-time response across all domains of enterprise systems. Backed by over a decade of experience, Vectra AI protects enterprises in 113 countries.

Today, the accuracy of threat detection systems depends heavily on access to high-quality, realistic network traffic data. Modern enterprises rely on a wide variety of protocols, but producing representative packet captures (PCAPs) for training and testing detection systems is both time-consuming and technically demanding. Engineers rely on manual creation methods, which slows down the ability to respond to new or evolving threats in a timely manner.

To address this challenge, our AI Network Protocol Engine leverages natural language processing and large language models to extract metadata from formal protocol documentation. With this structured data, the system produces realistic internally consistent traffic that is industry compliant.

Our system expands the breadth and quality of Vectra AI’s training datasets, filling gaps in protocol coverage while reducing engineering overhead. This ensures that Vectra AI’s detection models remain effective against threats carried over both common and emerging protocols in order to strengthen client security across the globe.

The AI Network Protocol Engine UI is a local web application that is built using React, the back end leverages ChromaDB for structured storage, OpenAI 4.1 mini as the large language model responsible for generating realistic PCAPs. All generated traffic is validated in Wireshark to ensure accuracy and internal consistency.

CSE498 | 8:00 a.m. – Noon Computer Science and Engineering, Third Floor | 3200/3300 Hallway

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Packet Forge: AI Network Protocol Engine