How can a silicon brain in a chip be built with self-learning capability? What are the challenges for neural network-based artificial intelligence in the next decade, and how can those challenges be solved? To answer these questions, Hongyu introduces a cutting-edge research topic: Brain-inspired Computing. Also called neuromorphic computing, brain-inspired computing aims to physically reproduce the brain’s structure in a silicon chip to resolve critical challenges in deep learning deployment.

In his talk, Hongyu will explore the underlying biological mechanism of associative memory learning, novel non-von Neumann computer architectures, and circuit implementations with transistors and memristors.

Hongyu An is a doctoral candidate in the Bradley Department of Electrical and Computer Engineering, Virginia Polytechnic Institute and State University (Virginia Tech). His research interests include neuromorphic and brain-inspired computing, energy-efficient neuromorphic electronic circuit design for Artificial Intelligence, three-dimensional integrated circuit (3D-IC) design, and emerging nanoscale device design.