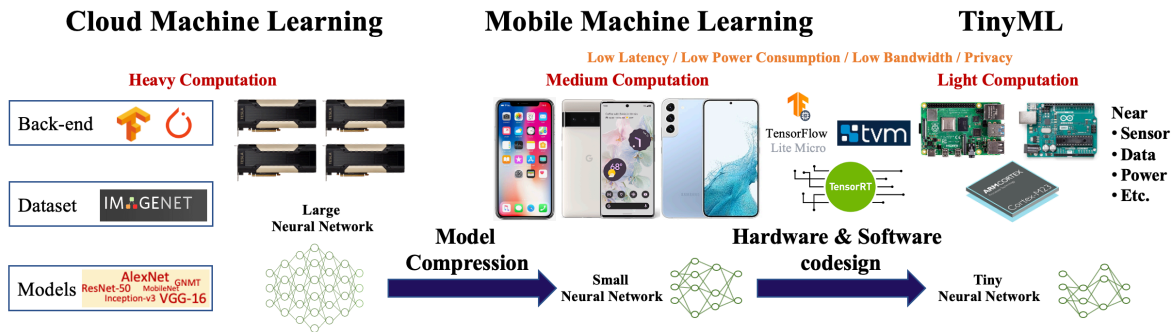


# New Course Spring 2023



SAN FRANCISCO  
STATE UNIVERSITY

## ENGR 859 On-Device Machine Learning



Machine learning, especially, deep learning has become pervasive due to its successes across a variety of applications, including computer vision, speech recognition, natural language processing, etc. However, the complexity of the machine learning model also poses a unique computational challenge to off-the-shelf mobile devices and state-of-the-art hardware design.

This course is a graduate/senior undergraduate course at the intersection of machine learning and mobile computing, which is designed to help students come up to speed on various aspects of machine learning for mobile devices, including the **basics of machine learning, deep learning, deep learning training and inference, and co-optimization of algorithms and hardware**. In particular, the students will be offered practical opportunities to learn how to build, train, optimize and deploy deep learning models that can run on low-power mobile devices (e.g., smartphones, embedded systems, and microcontrollers).

- ENGR 859 will apply towards **3 units** for the following programs:
  - MS ECE & ME Elective;
  - SF State Scholars in EE, CompE, and ME can count towards their MS course electives;
  - BS Upper-Division Elective for CompE, EE, and ME programs.
- This course will open to graduate/senior undergraduate Computer Science students.
- Contact Dr. Zhuwei Qin for any questions and to obtain permit code.

### Prerequisites:

- Python (Preferred) or C or Java Programming,
- Familiarity with command-line tools
- College calculus,
- Linear algebra (matrix-vector operations),
- Basic probability, and statistics.

### Class Time:

Tu/Th 1:00pm-2:30pm

### Contact:

Dr. Zhuwei Qin,  
[zwqin@sfsu.edu](mailto:zwqin@sfsu.edu)

