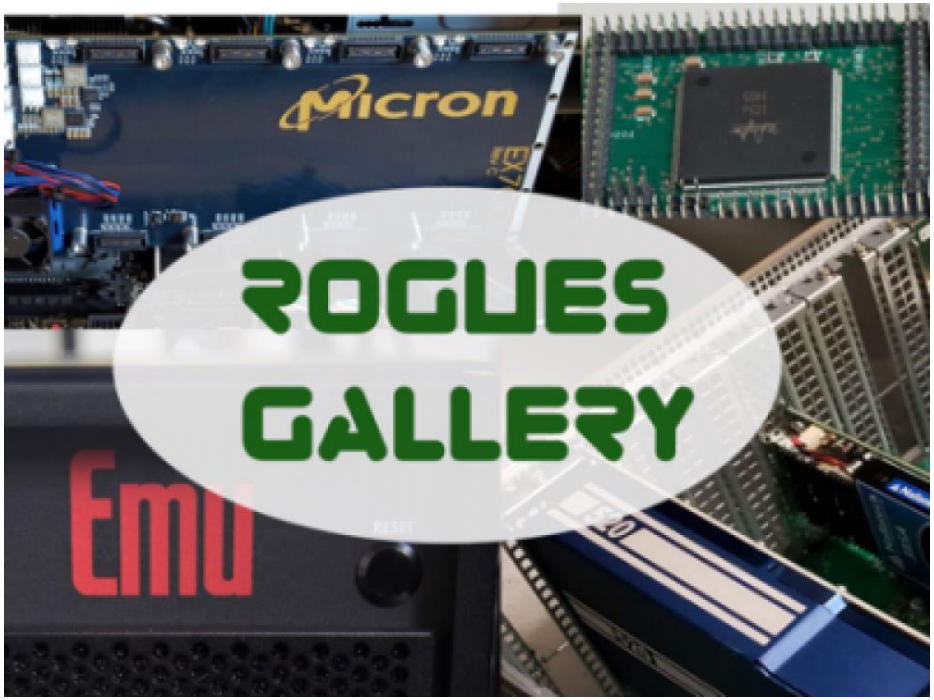
Novel Computing With The Rogues Gallery



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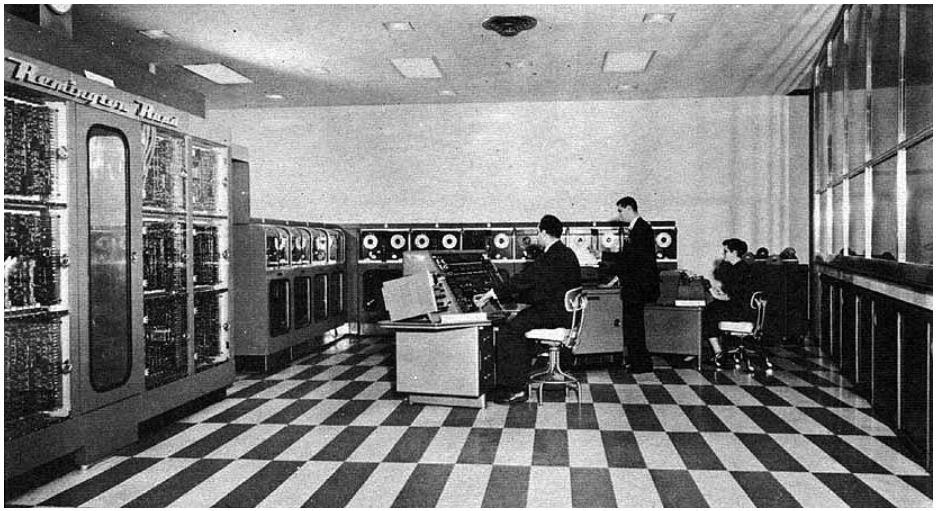
https://www.vip.gatech.edu/teams/rogues-gallery

What's the Big Problem?

The past 30-50 years has seen great improvements in power and performance due to ***transistor scaling.***



Univac 1 – an entire room

Today's hand-held supercomputer

But.. This scaling is coming to an end. We need ***new technologies and techniques*** to continue scaling power and performance.

Rogues Gallery VIP Team

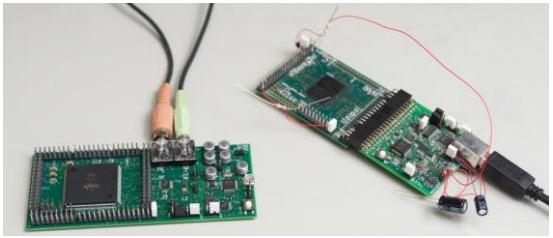
What are we trying to do?

- We are looking at novel hardware and ways to program them via a new testbed called the Rogues Gallery.

What have previous students looked at?

- Machine learning for image recognition on the Emu Chick, a novel machine where computation moves rather than data
- Neuromorphic applications for graph analysis and genomics with the FPAA
- Quantum computing – analysis of tools and benchmarking for current-generation systems

Top: Our Emu Chick system
Bottom: Dr. Hasler's FPAA



More details and specifics

Class meets at 3-3:50 Tuesdays on BlueJeans (Remote for Fall 2020)

- 1-3 credit hours; most work happens with your sub-group!

Possible teams:

1. **Emu Chick**
2. **Neuromorphic Simulation and FPAA framework**
3. **Quantum Computing**
4. **Reconfigurable Computing**

What skills are needed?

- Minimum: Good knowledge of Linux, SSH, previous programming experience (C/C++/Python)
- Preferred: Having taken ECE 3400 (for the FPAA) or CX 4220 (for Emu)

Interested?

Sign up for our VIP team or reach out for research opportunities
https://www.vip.gatech.edu/teams/rogues-gallery

Email questions to
Dr. Young - **jyoung9@gatech.edu**