US

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Accelerating the development of a capable exascale computing ecosystem

summit
IBM
EXIT

TACC

TEXAS ADVANCED COMPUTING CENTER

Powering Discoveries That Change The World

INTRODUCING

FRONTERA

UT Austin wins competitive $60 million grant from National Science Foundation

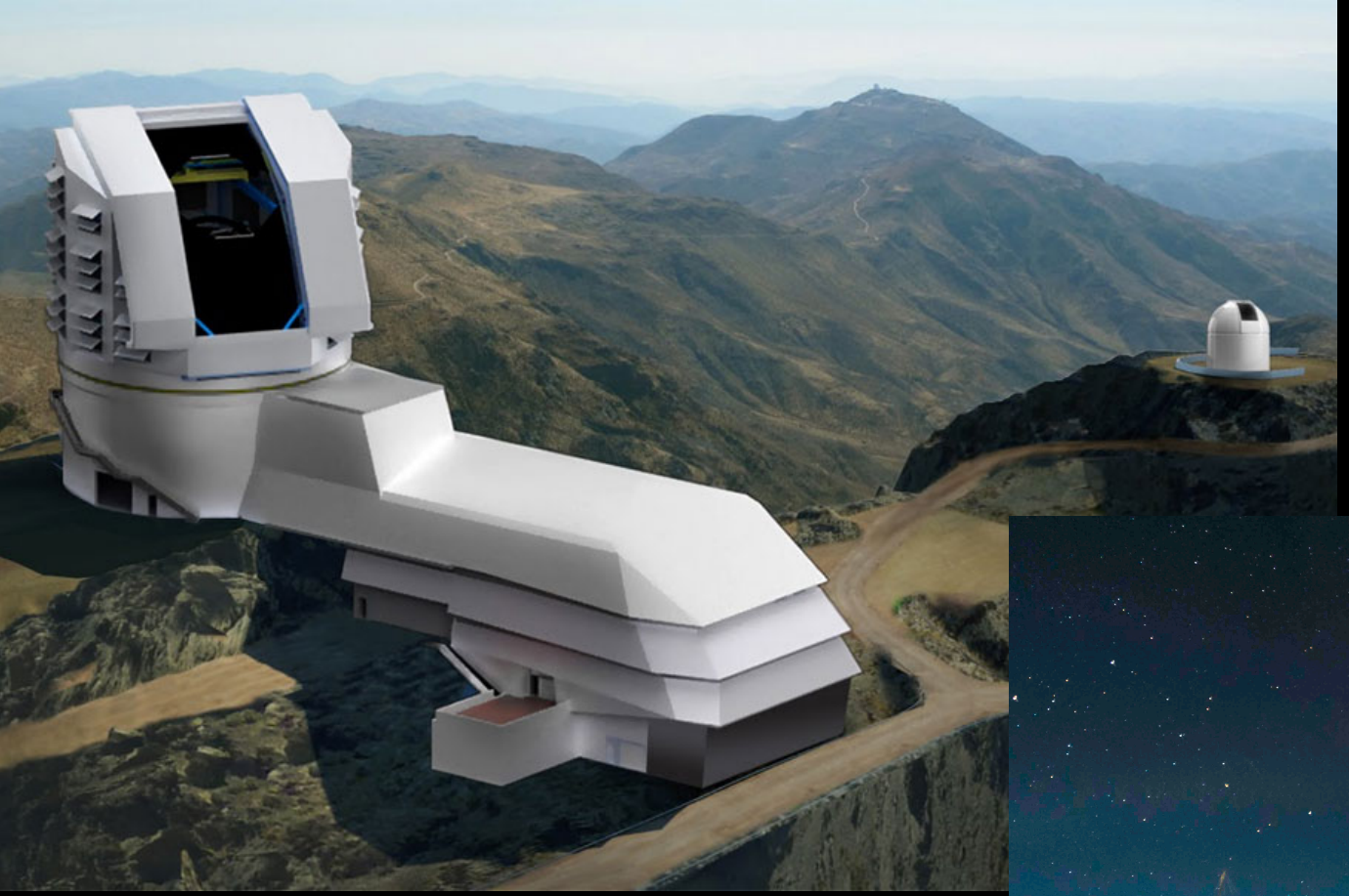
SIMULATIONS SHOW NEW PHENOMENON WITH NANOPORE DNA SEQUENCING

COME VISIT US IN DALLAS

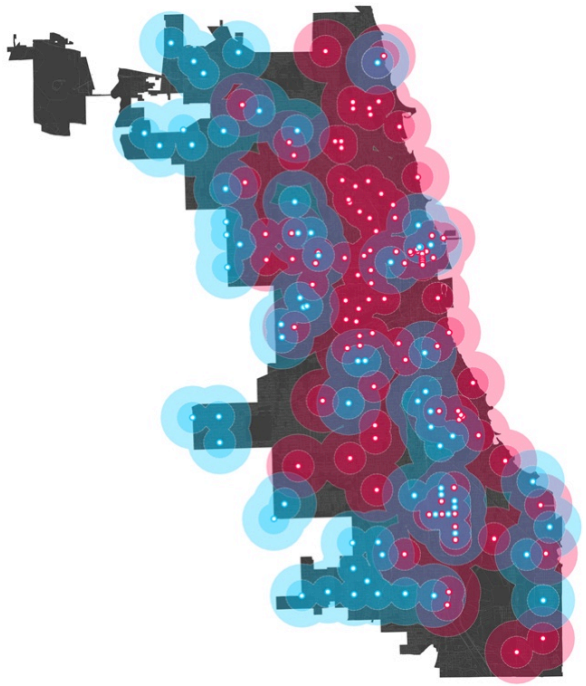
SC18

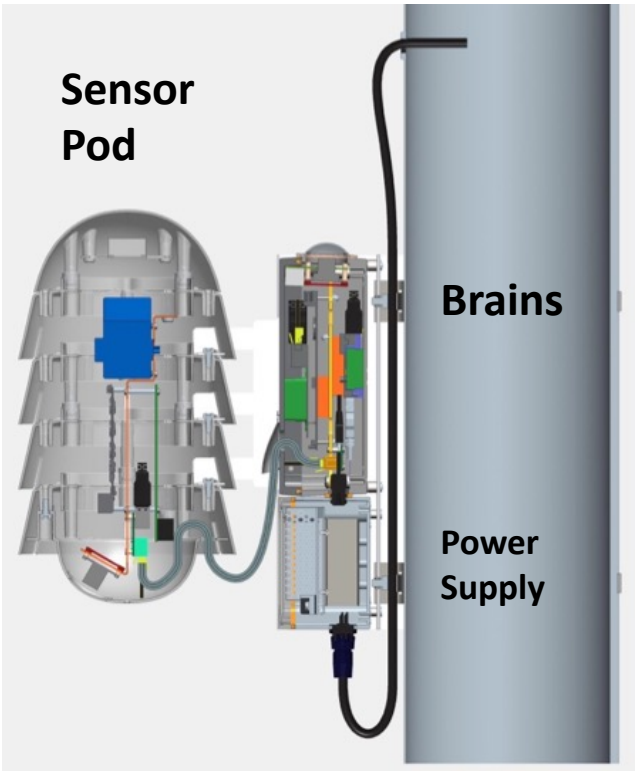
Dallas, TX | hpc inspires.

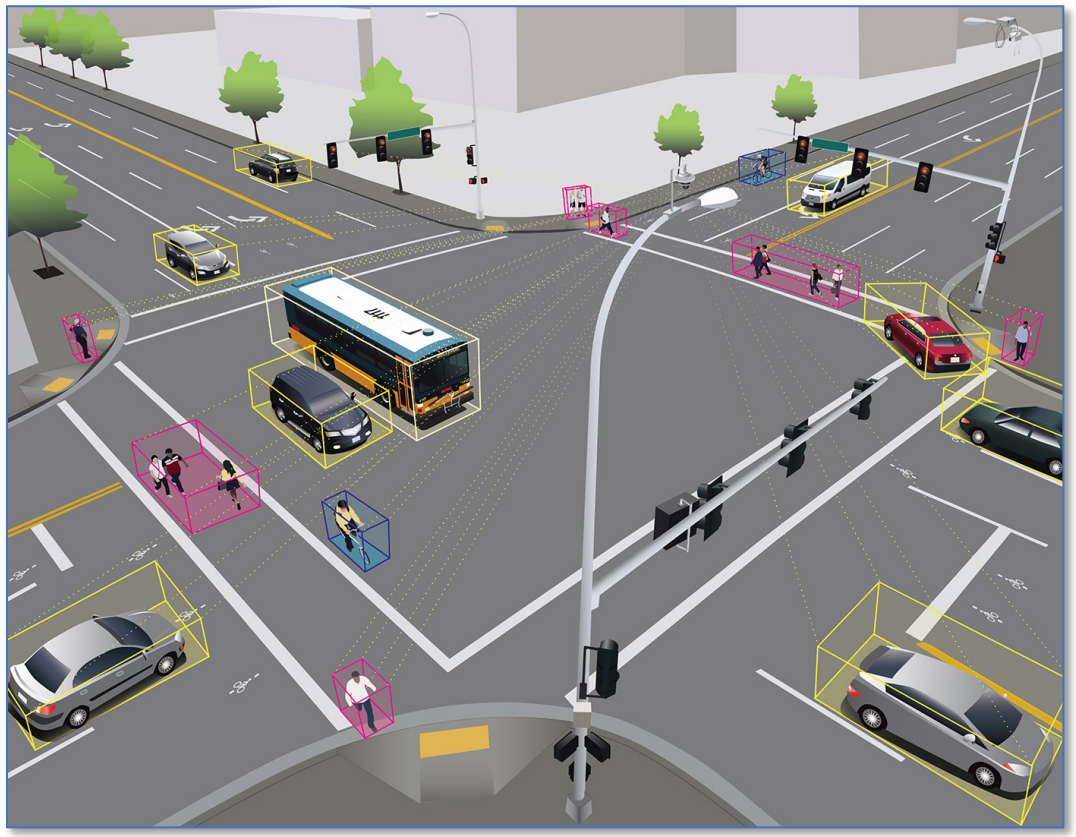
BOOTH #3707



Array of Things: Creating an Urban Measurement Platform







Increase Measurement Resolution

- Traditional Sensors
- Emerging Sensor Technologies

Computer Perception and Edge Computing

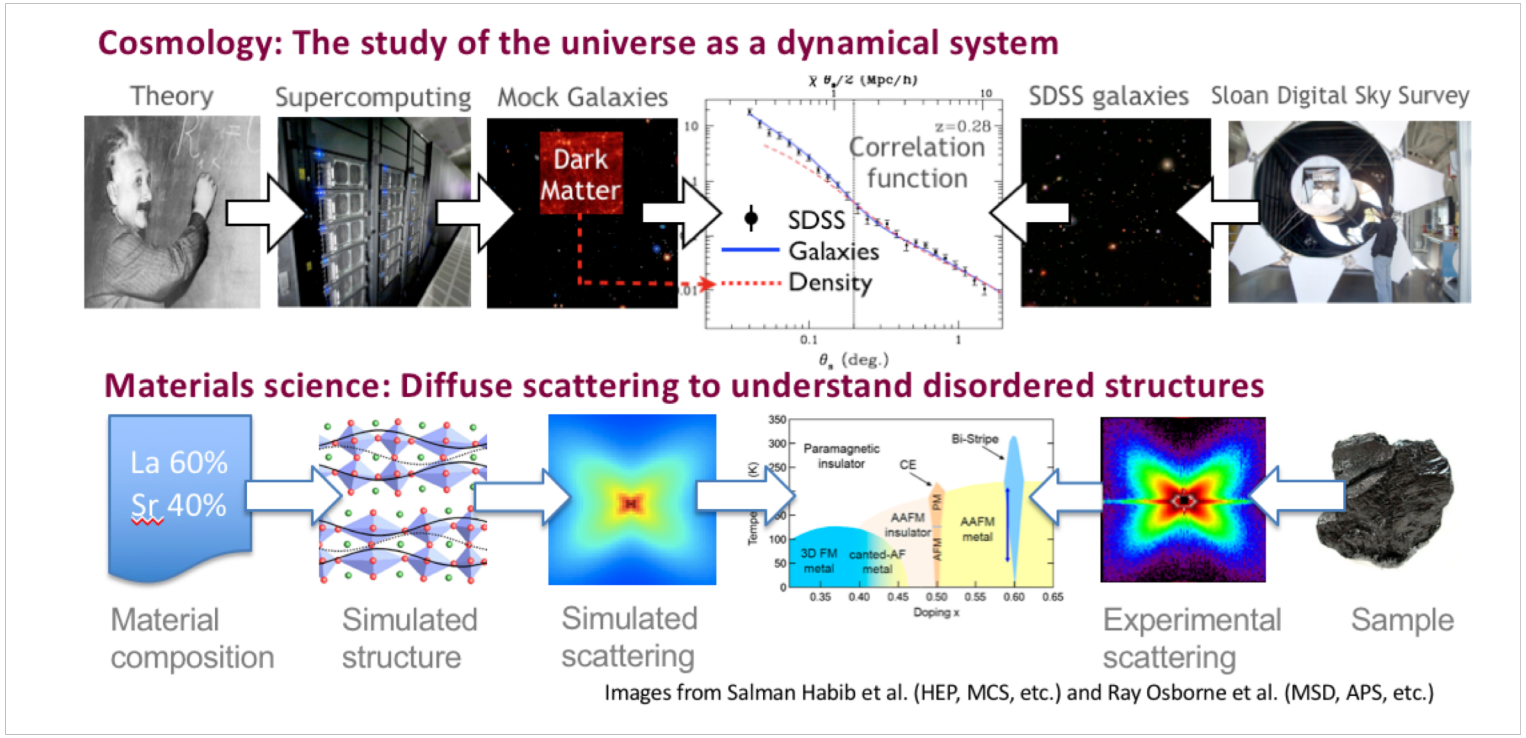
- Advanced Machine Learning Hardware
- Open Systems and Remote Programmability

THE UNIVERSITY OF CHICAGO Argonne NATIONAL LABORATORY

Machine Learning is becoming a major element of scientific computing applications

Across the DOE lab system hundreds of examples are emerging

- From fusion energy to precision medicine
- Materials design
- Fluid dynamics
- Synthetic Biology
- Structural engineering
- Intelligent sensing
- Etc.



The Computing Continuum

IoT/Edge → **Fog** → **HPC/Cloud/Instrument**

Size	Nano	Micro	Milli	Server	Fog	Campus	Facility
Example	Adafruit Trinket	Particle.io Boron	Array of Things	Linux Box	Co-located Blades	1000-node cluster	Datacenter
Memory	0.5K	256K	8GB	32GB	256G	32TB	16PB
Network	BLE	WiFi/LTE	WiFi/LTE	1 GigE	10GigE	40GigE	N*100GigE
Cost	$5	$30	$600	$3K	$50K	$2M	$1000M

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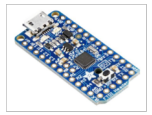
Size = 10^1



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