

# The adventures of an accidental computational biomedical scientist

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U.S. DEPARTMENT OF  
**ENERGY**

# Timeline

- 1983 - 1987

- University of Thessaloniki, Greece
- BS in Physics (minor in Biophysics)

- 1988 - 1993

- Duke University
- PhD in Biomedical Engineering

- 1993 - 2011

- Duke University Medical School
- Faculty in
  - Department of Radiology
  - Medical Physics Graduate Program

- 2011 - now

- ORNL – Distinguished scientist
  - Director of Biomedical Sciences Center (2011 - 2013)
  - Director of Health Data Sciences Institute (2014 - 2019)
  - Group leader (2016 - 2019)
  - **Division director (2019 – now)**
    - **National Center for Computational Sciences**
    - **167 staff members**
    - **Annual budget of \$275M**
- Adjunct Professor of Radiology at Duke University & UTK
- ORNL-UTK Bredesen Center joint faculty in Data Sciences

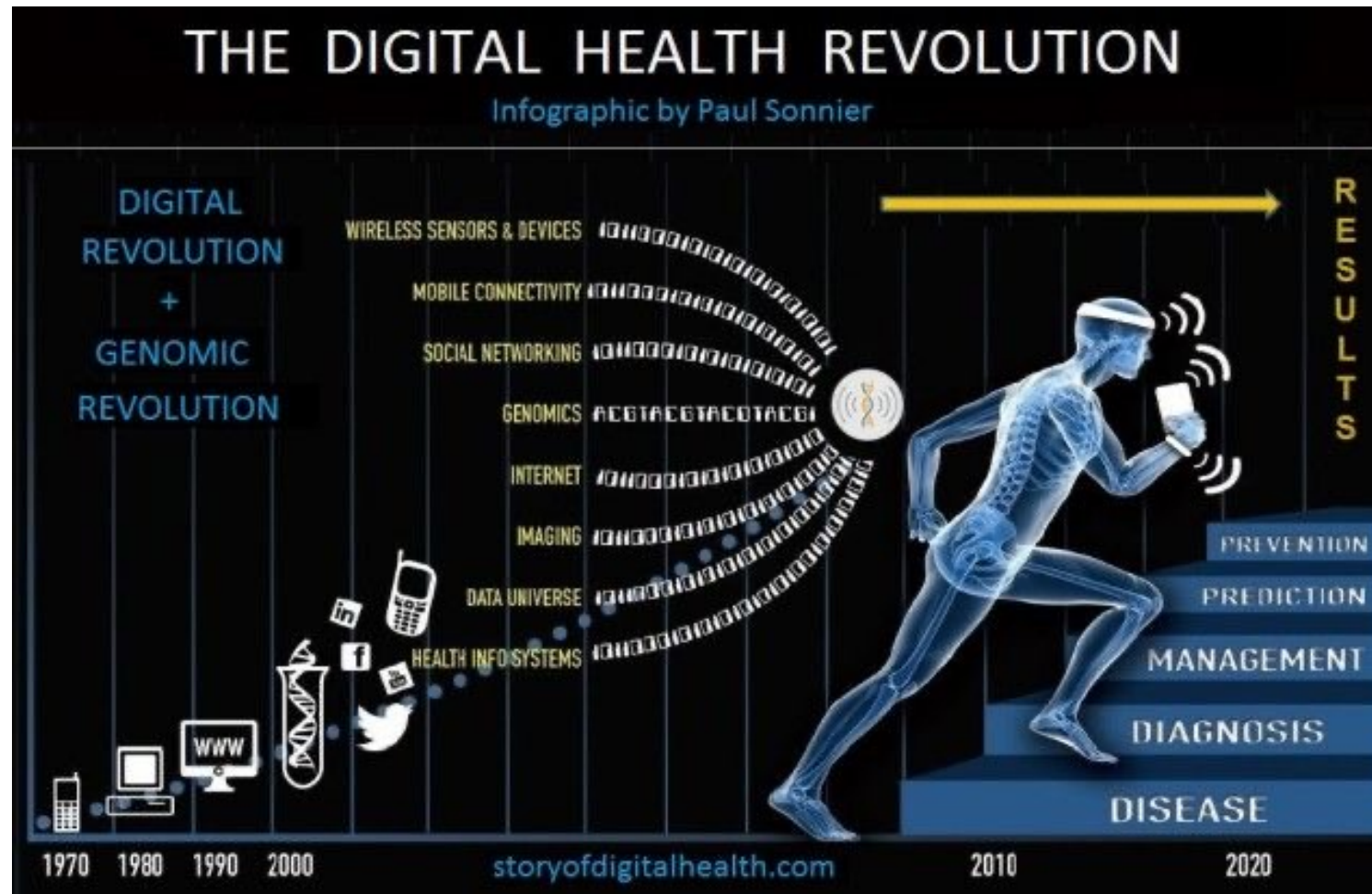
## Career Phase / Scientific Focus

- Graduate
  - Nuclear Medicine (SPECT)
  - Medical Image Reconstruction and Analysis
- Postdoc
  - Computer-Aided Diagnosis
- Academic Career
  - Clinical Informatics / Decision Support



**Common Thread: Big, multi-modal data – Artificial Intelligence**

# What brought me to ORNL





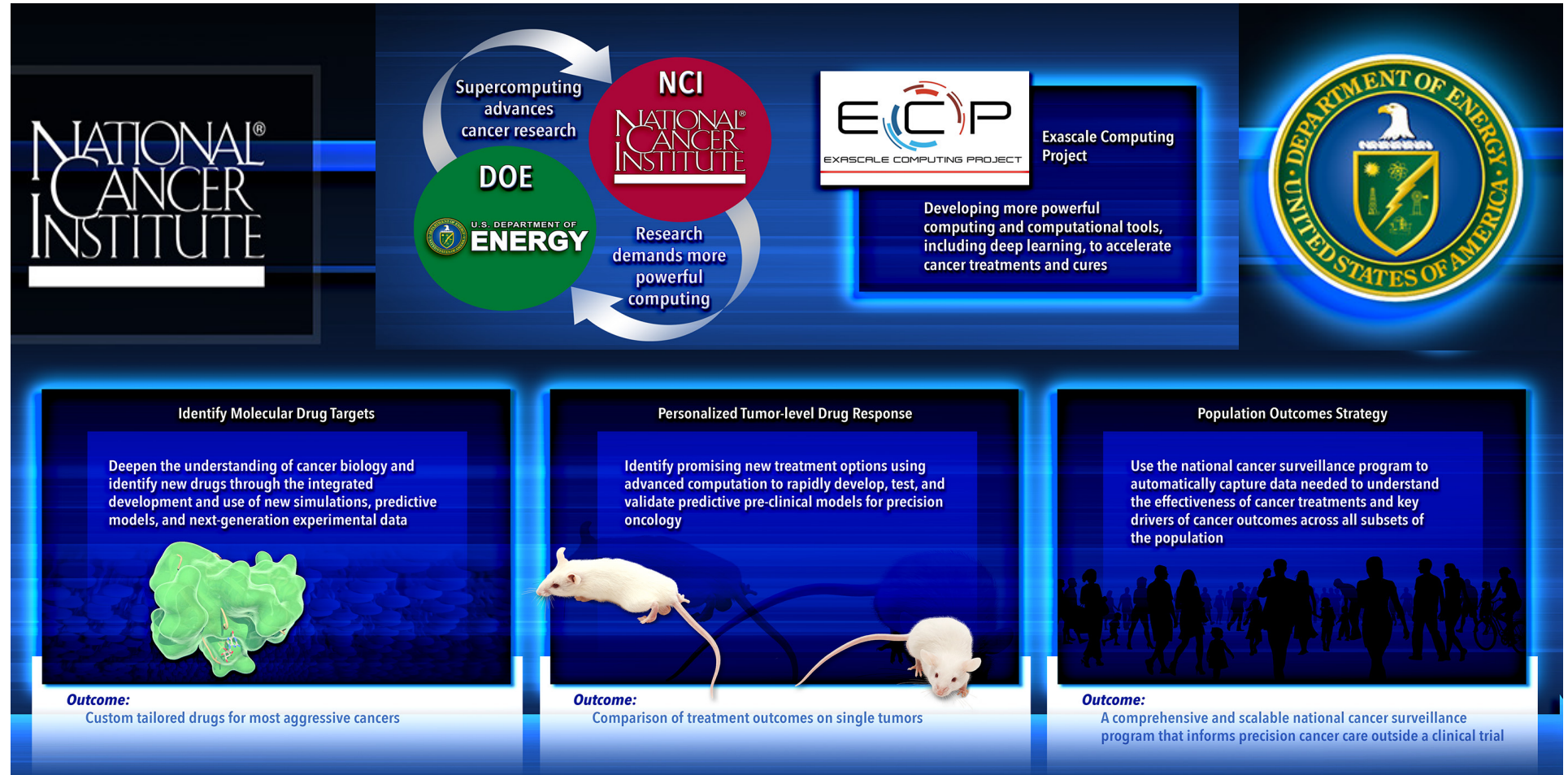
# Major Programmatic Effort

## Joint Design of Advanced Computing Solutions for Cancer (JDACS4C)

Phase 1: 2016-19

Phase 2: 2019-21

Phase 3: 2021-...



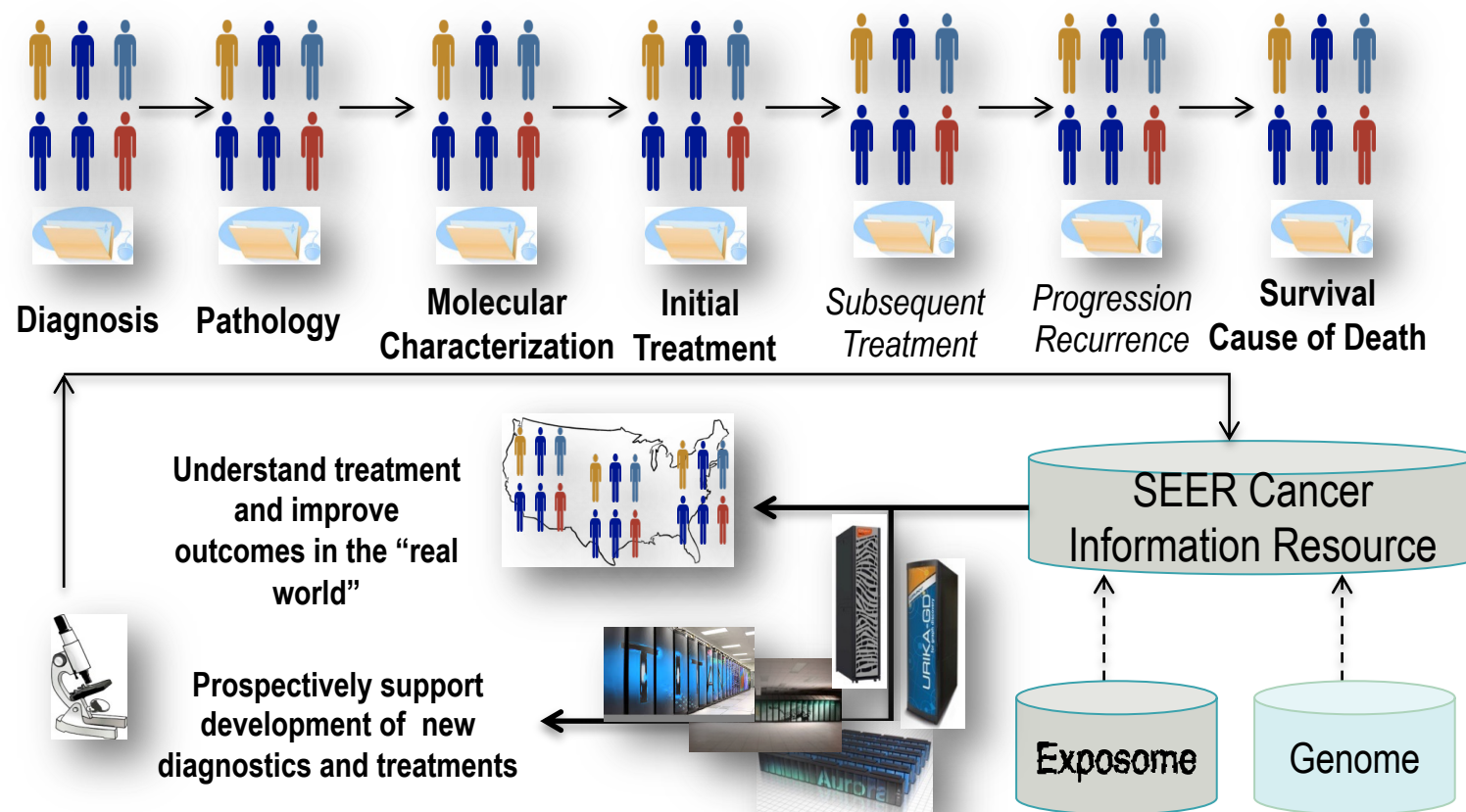
# AI to transform national cancer surveillance



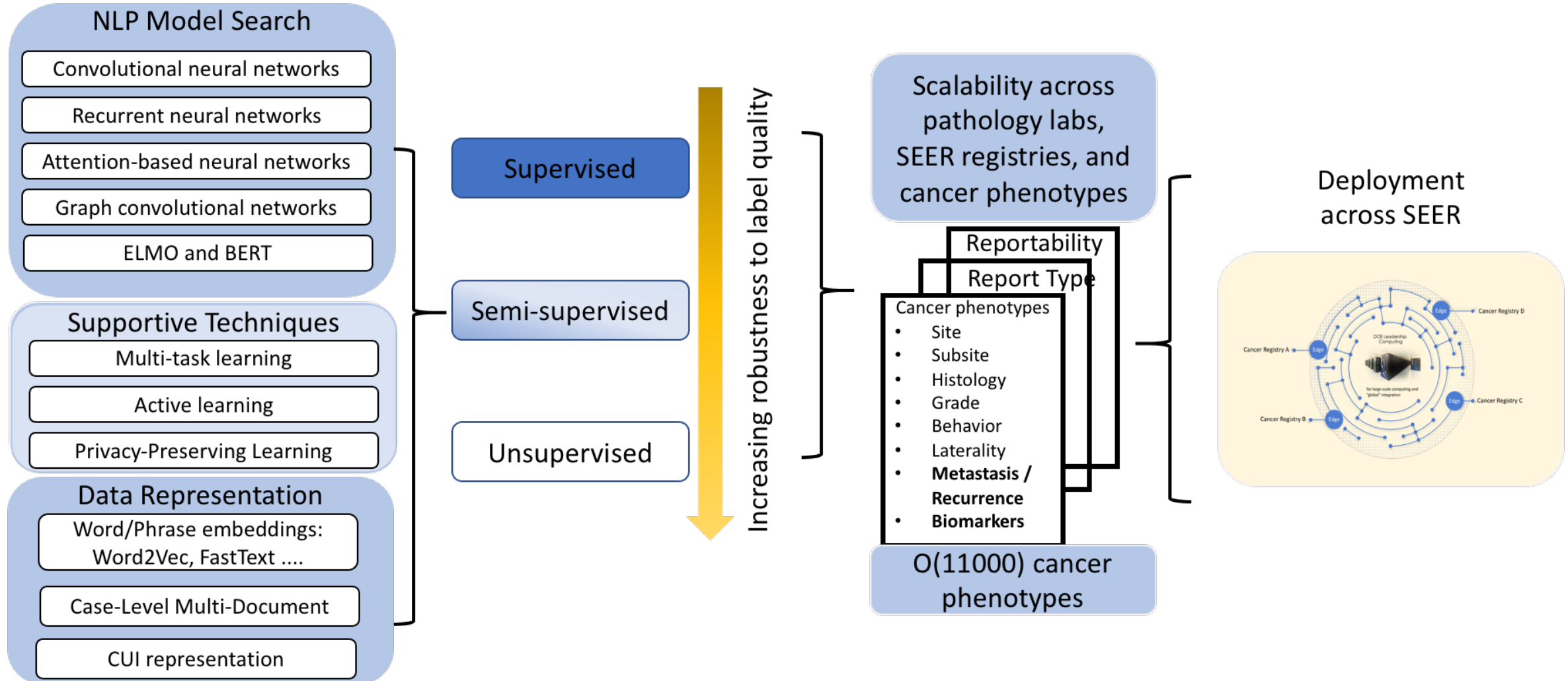
SEER is the premiere national surveillance system since 1973

- Funded by NCI its primary mission is to support research on the diagnosis, treatment and outcomes of cancer
- Population-based registries covering 30% of the US population with ~500,000 incident (newly diagnosed) cases reported annually
- Provides the most commonly used data to represent trends over time

Surveillance data captured/ planned on each cancer patient

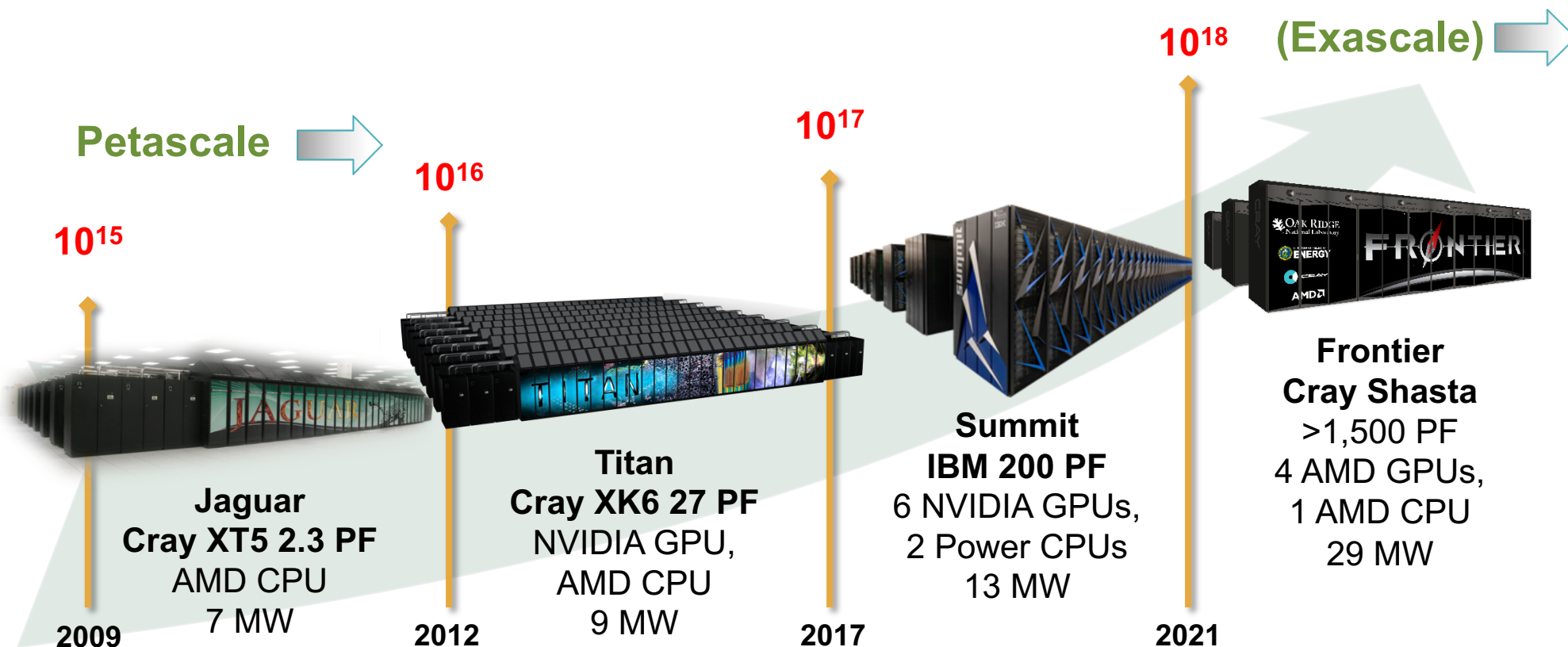


# AI and HPC for clinical text understanding @ scale



# Oak Ridge Leadership Computing Facility

Mission: Providing world-class computational resources and specialized services for the most computationally intensive global challenges for researchers around the world.





# What keeps me at ORNL

**BE A PART  
OF SOMETHING  
BIG!**

# What keeps me at ORNL

BE A PART  
OF SOMETHING  
**BIG!**

**...AND working with great people!**

# Thank you

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