RESEARCH TECHNOLOGIES
UNIVERSITY INFORMATION TECHNOLOGY SERVICES

Research Technologies is a center in the Pervasive Technology Institute at Indiana University

Research Technologies **Services**

Research Technologies (RT) develops, delivers, and supports advanced technology solutions that enable new possibilities in research, scholarly endeavors, and creative activity at Indiana University and beyond.

EXPERT CONSULTING

kb.iu.edu/d/alfa

Trained expert consultants assist you with advanced compute and storage resources, research software, and visualization and data resources to help advance your work.

Consulting for research workflows

- 3D digitization: Workflows, HPC resources, and tools for 3D digitization using photogrammetry or 3D scanning.
- Genomics and bioinformatics software: Support for bioinformatics and genome analysis software available on IU's research computing systems.
- GIS and remote sensing software: Support for geospatial research, instruction, and administration at IU.
- Scalable compute archives: Architecture frameworks to integrate applications and pipelines, with user interfaces and IU cyberinfrastructure.
- Scientific and information visualization: Optimizations of existing visualizations, interactions, or media applications workflows.
- Statistical and numerical software: Help using statistical or mathematical applications at IU.
- Text analysis: Scalable tools and computational notebooks for analyzing text from literary collections, social media, and journal abstracts.
- Virtual and augmented reality: Hardware and software workflows for virtual and augmented reality applications.
- Programming support: Help migrating, optimizing, and paralleling your advanced scientific code.
- REDCap-ETL: REDCap extension for transforming and moving data to external systems and formats.

Consulting for data management

- 3D data and metadata workflows: Workflows and best practices for managing digitized or born-digital 3D data and metadata.
- Data Capacitor II (DC2) and Data Capacitor Wide Area Network 2 (DC-WAN2): Support for data management, data transfer, ePHI data storage, and best practices.

- Slate and Slate Project: Support for data management, data transfer, ePHI data storage, and best practices.
- Storage on Geode and Scholarly Data Archive (SDA): Data management, data transfer, ePHI data storage, and best practices of storage.
- Research data management: Research data and metadata management tools, workflows, best practices, and consulting on RT, IU, and cloud storage resources.

Consulting for RT resources

- Supercomputer Pathfinder: Find out which supercomputer best suits the needs of your project and level of experience.
- Visualization cyberinfrastructure: Hardware display systems and software workflows on local, university, or national HPC resources.
- HPC everywhere: Status and usage information about IU's advanced compute and storage systems.

Consulting for grants

- Grant development resources: Letters of support, cyberinfrastructure facilities statements, and data management plans.

RESEARCH SOFTWARE

kb.iu.edu/d/bade

Delivering apps for analytics and big data research; distributing stat/numerical and open-source software.

Available software

- High-performance computing: List of software available on IU's supercomputers.
- IUanyWare: Software accessible through IUanyWare.
- National Center for Genome Analysis Support: Genomics and bioinformatics software.

Obtain/request software

- IU's supercomputers: Request high-performance computing software on any of IU's supercomputers for any field of science.
- IUanyWare: Request software on IUanyWare.
- Research analytics: Obtain statistical, mathematical, or geospatial software packages.

COMPUTE AND STORAGE RESOURCES

kb.iu.edu/d/anrf

Enabling fast calculations, advanced simulations, and massive secure storage.

Cloud computing

- Jetstream—cloud resource: Cloud-based, on-demand computing, and data analysis resource.

Data storage

- Data Capacitor II (DC2): Large-capacity, high-bandwidth file system for short to mid-term storage of data mounted on IU research computing systems.
- Data Capacitor Wide Area Network 2 (DC-WAN2): Large, high-speed data storage facility that lets researchers access and share remote data.
- Slate and Slate Project: High-performance Lustre file systems with persistent storage.
- Home directories on Geode: Personal storage of scripts, documents, configurations, and programs for use on IU's supercomputers.
- Project space on Geode: Storage of scripts, documents, configurations, and programs for collaboration on IU's supercomputers.
- Scholarly Data Archive (SDA): For storing and accessing IU research data (long-term and large data storage).

Interactive computing

- IUanyWare: Use a web browser or mobile app to run certain IU-licensed software applications.
- Research Desktop (RED): Use IU's supercomputers in a graphical desktop window on your personal computer.
- Trinity Galaxy: Graphical interface to the Trinity suite of RNAseq tools.

Supercomputers

- Big Red II+: IU's supercomputer configured to provide an environment for large-scale, compute-intensive research.
- Big Red 200: Coming in early 2020—IU's supercomputer to power advanced machine learning applications, 300 times faster than the original Big Red supercomputer.
- Carbonate: IU's large memory computer cluster configured to support high-performance, data-intensive computing.
- Karst: IU's high-throughput computing cluster, designed to deliver large amounts of processing capacity over long periods of time.

VISUALIZATION AND DATA SERVICES

kb.iu.edu/d/apcl

Promoting interactive models, virtual and augmented reality, advanced digital arts and media as well as secure data analysis.

3D digitization

- 3D scanning: Lending library of scanners and workflows for 3D scanning.
- Photogrammetry resources: Lending library of kits and software for photogrammetry projects.

Workflows for regulated data

- Restricted Access Data Remote Server (RADaRS): Research hub that allows IU researchers to securely access and analyze datasets from data providers.

Research databases

- Genome browsers: Web browsers that supports biologists in displaying genomics information.
- IU REDCap: Secure, web-based application for building and managing surveys and databases in support of academic research.
- Research Database Complex (RDC): Supports research-related databases and data-intensive applications that require databases.

Visualization systems

- Advanced media capture equipment: Media capture equipment for 360°, stereoscopic, ultra-resolution images and video.
- IQ-Table displays: Multi-touch, multi-user table for custom exhibits and interactive applications.
- IQ-Wall displays: Large-format, ultra-high-resolution display used for research, teaching, and creative activities.
- NEXT Labs facilities: New, Emerging, and eXperimental Technologies Labs at IUPUI and IU Bloomington.
- Reality Labs—virtual reality classrooms: Technology classrooms and lab spaces equipped with virtual reality technology.

Learn how Research Technologies can help you go bigger, better, faster, and bolder with your research or creative project.

RT.IU.EDU

TRAINING AND OUTREACH

kb.iu.edu/d/arvx

Connecting you with the research services you need to reach discovery through targeted training, seminars, workshops, and tours.

Advanced cyberinfrastructure tours

- Supercomputing facility tours: Tours of advanced visualization facilities and data centers at IUPUI and IU Bloomington.

Education/workforce development

- Jetstream Research Experience for Undergraduates (REU) program: Students work with IU researchers and staff to do mentored research projects about Jetstream.
- Research Technologies Student Poster Expo: Students share work they've done using IU's advanced cyberinfrastructure.

Outreach

- Research Services Expo: Annual expo of services available to IU faculty, staff, and students to help accelerate their research.

Science, Technology, Engineering, and Mathematics (STEM) pipeline

- K–12 science and technology events: Activities that encourage students to pursue a career in STEM.
- Ready, Set, Robots!: Camp where students are introduced to computer programming, advanced visualization, problem-solving, critical-thinking, and public speaking.
- Cybersecurity Camp: Students learn to become cyber-sleuths and get the scoop on all things cybersecurity.

Workshops, trainings, and seminars

- Peebles Memorial Lectures in Information Technology: Lecture in information technology relevant to research, teaching, or creative activity in academe.
- In-person training for research and advanced computing: Customized training to departments/schools/units upon their request.
- Training online for research and advanced computing: Learn how to use IU's advanced computing resources in an online, self-paced format (expand.iu.edu).
- Supercomputing for Everyone Series: In-person workshops and seminars to learn about the resources available at IU, from compute and storage to software and visualization.