Danko Adrovic

Research Engineer
College of Computing and Digital Media
DePaul University
Chicago, IL
danko.cdm.depaul@gmail.com

My research:
Development of infrastructure and software for data management and reproducibility of research results.

My expertise is:
- Tropical algebraic geometry
- Polyhedral homotopies
- Machine learning (nonlinear subspace clustering methods)
- Algorithms and software development

A problem I'm grappling with:
Development of software for efficient data management, sharing and reproducibility of scientific research results.

I've got my eyes on:
Current state of research and methodology in the field of physics and engineering.

I want to know more about:
Potential to apply data management, reproducibility techniques and software to various branches of physics.

Adam Aurisano

Post-doctoral fellow
University of Cincinnati
MINOS+ physics coordinator and sterile neutrino convener
NOvA detector simulations convener
aurisaam@ucmail.uc.edu

My research:
Measuring neutrino oscillation parameter and searching for sterile neutrinos using data collected by the MINOS/MINOS+ and NOvA experiments. Developing deep-learning based neutrino interaction classifiers.

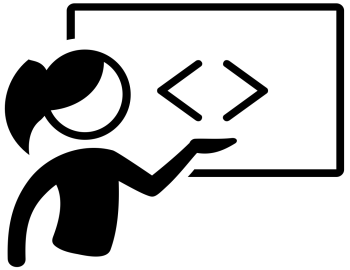
My expertise is:
Neutrino physics, sterile neutrinos, detector simulations, and convolutional neural networks.

A problem I'm grappling with:
Separating cosmic ray backgrounds from neutral current signal and separating tau neutrino and neutral current interactions.

I've got my eyes on:
Semantic segmentation.

I want to know more about:
Novel network architectures to improve classification or reconstruction.

UNIVERSITY OF Cincinnati

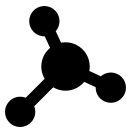


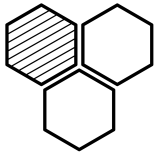
Lothar Bauerdick

Senior Scientist at Fermi National Accelerator Lab

bauerdick@fnal.gov

My research:
CMS Experiment at the LHC at CERN
Involved in experiment operations including the US contributions to CMS software and computing





My expertise is:
Expert in nothing, but familiar with HEP software, workflows, data management, aspects of distributed high throughput computing

A problem I'm grappling with:
LHC computing needs to scale by x100 to the high-luminosity LHC upgrade.

I've got my eyes on:
Functional Programming, from languages to category theory

I want to know more about:
How to incorporate new ideas, approaches and progress in computer science: HEP is working in a rather closed "C++-based" data processing ecosystem — how disruptive do we need to be to make real progress?

Paolo Calafiura

I am a scientist in the Computational Research Department at Berkeley Lab.

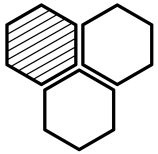
My research:
Software Engineering
Heterogeneous Computing
Pattern Recognition

My expertise is:
HEP Application Frameworks, Data Models, Parallel Computing

A problem I'm grappling with:
How to run HL-LHC pattern recognition ten times faster, and on 10 times more cores

I've got my eyes on:
Neuromorphic Computing

I want to know more about:
Algorithms for parallel tracking,
Millions of other things...



Jeff Carver

Associate Professor
Computer Science
University of Alabama
carver@cs.ua.edu
http://carver.cs.ua.edu

My research:
Empirical Software Engineering, Human Factors in Software Engineering, Software Engineering for Science, Software Quality

My expertise is:
Software Engineering
Human Factors / Empirical Studies

A problem I'm grappling with:
How to best use software engineering principles to develop scientific/research software

I've got my eyes on:
Working with scientific/research developers to understand and address their specific problems

I want to know more about:
What bottlenecks HEP developers face when writing software

THE UNIVERSITY OF ALABAMA®

Kyle Chard

Senior Research & Fellow
University of Chicago and Argonne National Laboratory

chard@uchicago.edu

My research:
Elastic cloud provisioning, science as a service, economic resource allocation, information extraction

My expertise is:
Distributed computing, research data management, data publication

A problem I'm grappling with:
Methods to support computational reproducibility

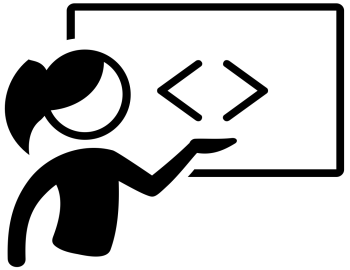
I've got my eyes on:
Techniques for capturing and publishing data and computational processes

I want to know more about:
Researchers' data management and reproducibility challenges

THE UNIVERSITY OF CHICAGO

Argonne NATIONAL LABORATORY

globus



Kaushik De

<Your title and contact details go here.
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My research:
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My expertise is:
<All text can be replaced, but for consistency we recommend the headings remain.>

A problem I’m grappling with:
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I’ve got my eyes on:
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I want to know more about:
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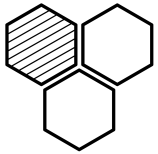

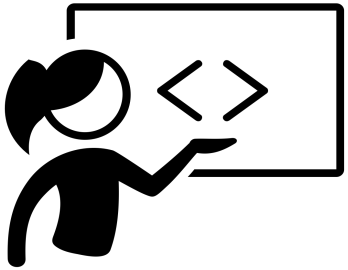

Aaron Elliott

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A problem I’m grappling with:
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I’ve got my eyes on:
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I want to know more about:
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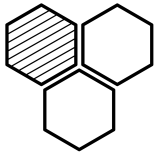


Peter Elmer

Staff Researcher, Princeton University
CERN CMS Experiment Software&Computing R&D Coordinator
U.S. CMS Ops Program Software&Support L2 Manager
Lead PI for DIANA-HEP and S2I2-HEP Projects
Peter.Elmer@cern.ch

My research:
The CMS Experiment at CERN. I work on building the software and computing systems needed to operate and produce scientific results from the experiment.

My expertise is:
High Energy Physics (HEP) software and computing, large software/computing projects

A problem I'm grappling with:
Recognizing echo chamber effects in our thinking and in our organizations and finding ways to create a more dynamic and sustainable long term structure to address our challenges.

I've got my eyes on:
All of you (and your ideas and experience)

I want to know more about:
Places where HEP problems overlap with the larger research community; ideas and prior experience which show how we might collaborate on those problems.

PRINCETON UNIVERSITY

CERN

CMS

diana hep

S2I2 HEP

Neil Ernst

Senior Researcher, CMU Software Engineering Institute
@neilernst
nernst@sei.cmu.edu
http://neilernst.net

My (current) research:

- Design implications of highly configurable software systems
- Capturing technical debt using machine learning on software artifacts

My expertise is:

- Requirements engineering
- Software architecture
- Empirical Software Engineering

A problem I'm grappling with:
Designing systems in an "intelligent connected" software era.

I've got my eyes on:
Using machine learning to capture user desires.

I want to know more about:
HEP-specific software design challenges.

Software Engineering Institute
Carnegie Mellon University

Amir Farbin

Associate Professor
University of Texas Arlington
afarbin@uta.edu

My research:

ATLAS Experiment: SUSY Searches (Razor/Jigsaw Technique), Physics Analysis Tools Coordinator, Tile Calorimeter. New focus: Trigger Transition to multi-threaded framework.
DUNE Experiment: Deputy Computing Coordinator
LArIAT Experiment: Deep Learning-based Reconstruction
MiniBooNE Experiment: sub-GeV Dark Matter Searches

My expertise is:
Physics Analysis Software, Event Data Model, HEP and Deep Learning Frameworks, Deep Learning, GPUs.

A problem I'm grappling with:
Applying Deep Learning techniques to various HEP problems. Building/Operating GPU cluster for large DL training. Working across experiments and frontiers.

I've got my eyes on:
Moore's Law and HL-LHC requirements. Future Frameworks that use dataflow and data parallel programing and can efficiently utilize many-core processors, co-processors (e.g GPU, FPGAs), and integrate Deep Learning.

I want to know more about:
Hardware and software landscape a decade from now.

Matthew Feickert

High Energy Physics Ph.D. Candidate
Southern Methodist University
matthew.feickert@cern.ch or mfeickert@smu.edu
GitHub: matthewfeickert @HEPfeickert

My research:

- Upgrades to the b-jet trigger slice of the ATLAS trigger
- Higgs decays to heavy flavour fermions ($H \rightarrow b\bar{b}$, $H \rightarrow c\bar{c}$)
- di-Higgs production at the LHC

My expertise is:
Physics data analysis, building applications with C++ and Python

A problem I'm grappling with:
How to maximize use of local Tier-3 compute resources for ATLAS analysis tasks

I've got my eyes on:
Applications of machine learning in high energy physics; Reproducible data analysis

I want to know more about:
New applications of high performance computing in high energy physics

SMU

ATLAS EXPERIMENT

CERN

SciPy.org

Rob Gardner

@rwg

Senior Scientist, Enrico Fermi Institute
Senior Fellow, Computation Institute
The University of Chicago
rwg@uchicago.edu

My research:
Accelerating science through distributed high throughput computation. Leading OSG User Support and Campus Grids, US ATLAS Distributed Facility Integration program (Tier2 centers). ATLAS federated data access & caching with Xrootd. Data and Software Preservation and automating virtual cluster creation collaborative science.

My expertise is:
Data-intensive, distributed high throughput computation

A problem I'm grappling with:
Helping Xenon1T and SPT-3G utilize tools & methods developed for LHC and OSG. Managing innovation while running production facilities and large user communities. Helping small campuses leverage cyberinfrastructure.

I've got my eyes on:
Technologies for software preservation, 'data center' virtualization & containerization, automation, content delivery methods as applied to science

I want to know more about:
Methods for sustaining software, and infrastructure over long time periods

THE UNIVERSITY OF CHICAGO
Open Science Grid
ATLAS EXPERIMENT
mwt2.org
ci connect
VC3
DASPOS

Sandra Gesing

Research Assistant Professor, Computer Science and Engineering, University of Notre Dame
Computational Scientist, Center for Research Computing, University of Notre Dame
sandra.gesing@nd.edu
Phone: 574-298-0690

My research:
My research interests include science gateways, workflows as well as distributed and parallel computing. I'm part of the NSF S2I2 Science Gateways Community Institute.

My expertise is:
- Science gateways, workflows, distributed and parallel computing
- Community building

A problem I'm grappling with:
- To involve more end users in science gateway and workflow community building
- Sustainability of solutions
- Career paths for "Cyberpractitioners"

I've got my eyes on:
- Open-access publications with impact factors and affordable

I want to know more about:
- Experiences/solutions of others with sustainability

Sergei V Gleyzer

Researcher, University of Florida, coordinator of the Inter-experimental Machine Learning (IML) working group. Email: sergei@cern.ch

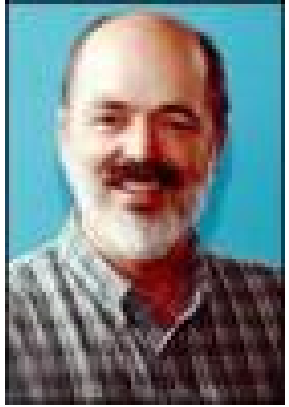
My research:
My research is at the intersection of particle physics and machine learning. I develop algorithms, software and new applications for LHC data analysis and detector development. I am a member of the CMS experiment.

My expertise is:
Machine learning in HEP, algorithms and data analysis, software development and searches for new physics

A problem I'm grappling with:
How to push current boundaries of performance and build sustainable software

I've got my eyes on:
Everything related to machine learning, HPC

I want to know more about:
New partnerships between HEP and CS, niche ML algorithms that do not yet have applications in particle physics



Dick Greenwood

Professor of Physics
Louisiana Tech University
greenw@latech.edu

My research:
Top physics and SUSY Searches with ATLAS, Triggering on Jets with GPUs

My expertise is:
HEP analysis, simulations, Distributed computing

A problem I'm grappling with:
Development of Trigger systems for future High pileup environment at the LHC

I've got my eyes on:
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I want to know more about:
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LOUISIANA TECH UNIVERSITY

Open Science Grid

ATLAS EXPERIMENT

CERN

Thomas Hacker

Professor of Computer and Information Technology
Purdue University
West Lafayette, Indiana
tjhacker@purdue.edu

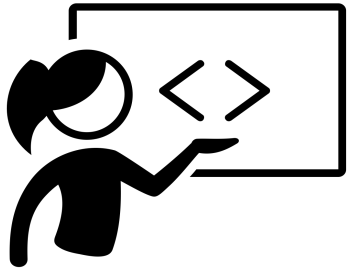
My research:
Cyberinfrastructure, HPC system reliability, research computing.

My expertise is:
Networking, operating systems, cyberinfrastructure, reliability.

A problem I'm grappling with:
Collecting visual data from structures.

I've got my eyes on:
Markov Random Field based classification.

I want to know more about:
Automatically measuing optical spatial resolution.



Benjamin Hooberman

Professor

My research:
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My expertise is:
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A problem I'm grappling with:
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I've got my eyes on:
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I want to know more about:
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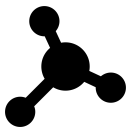
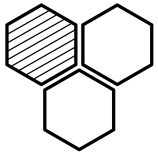




Kathryn (Katy) Huff

Blue Waters Assistant Professor
Nuclear, Plasma, and Radiological Engineering
NCSA Affiliate Faculty
University of Illinois at Urbana-Champaign
kdhuff.npre.illinois.edu or arfc.npre.illinois.edu

My research:

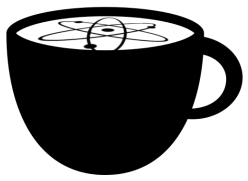
- Modeling and simulation of advanced reactors and fuel cycles
- Coupled neutronics and thermal hydraulics
- Agent-based methods for fuel cycle simulation

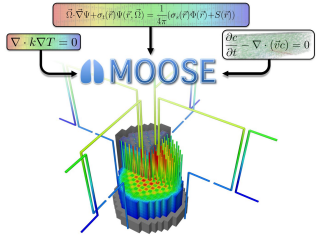
My expertise is:
Coupled physics of advanced nuclear reactors, dynamics of advanced nuclear fuel cycles, nuclear waste management, open and reproducible research software development.

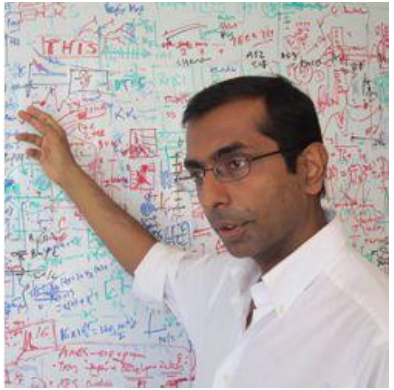
A problem I'm grappling with:
Simulation sensitivity to nuclear cross section data variability.

I've got my eyes on:
Open reproducible scientific computing.

I want to know more about:
Uncertainty quantification for high fidelity coupled multi-physics simulation.







Shantenu Jha

Associate Professor, Computer Engineering.
Rutgers University.
http://radical.rutgers.edu

My research:

- Cyberinfrastructure R&D
- High-Performance Distributed Computing
- Computational Science

My expertise is:

- High-performance and distributed systems
- Abstractions and standards based middleware and software systems.

A problem I'm grappling with:

- A systems approach to the design and federation of distributed systems.
- Principles and abstractions for distributed resource management.
- Models of Distributed Systems and Software

I've got my eyes on:

- A Building Blocks Approach to Workflows.

I want to know more about:

- Many things..

Robert Kalescky

HPC Applications Scientist, Center for Scientific Computation, Southern Methodist University
rkalescky@smu.edu

My research:

- Computational Spectroscopy (small molecules, reactions)
- (*Ab Initio*) Molecular Dynamics (proteins, MOFs)

My expertise is:

- Computational chemistry methods (classical, post-HF, and DFT)
- Parallel programming
- HPC application performance analysis

A problem I'm grappling with:

- Supporting multitude of application software stacks

I've got my eyes on:

- Adapting methods and workflows to accelerator-based resources
- Machine Learning methods and workflows

I want to know more about:

- Large-scale software design and support

SMU

Daniel S. (Dan) Katz

Assistant Dir. for Scientific Software & Applications, NCSA
Research Associate Professor, ECE
Research Associate Professor, iSchool
University of Illinois, Urbana-Champaign
d.katz@ieee.org or dskatz@illinois.edu
danielskatz.org @danielskatz

My research:
Developing computational & data science & engineering cyberinfrastructure: systems, tools, policies, practices

My expertise is:
- Applications, algorithms, fault tolerance, and programming in parallel and distributed computing
- Software citation & credit mechanisms & practices for software

Problems I'm grappling with:
- Making research software sustainable
- Career paths for computing researchers
- Changing the academic system

I've got my eyes on & want to know more about:
- Experiences others have had, especially successes

NCSA ILLINOIS ROpenSci swift

Jim Kowalkowski

Computer Science Researcher
Division Software R&D Coordinator
Deputy Head Systems for Scientific Applications

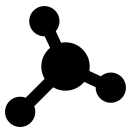
My research:
My principal focus is algorithms and large scale software systems for data analysis and detector simulation for high energy experimental physics. This includes developments to increase scientific software productivity through better use of tools, programming techniques, and methodologies.

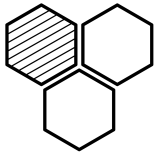
My expertise is:
Systems architecture, design, implementation. C++, distributed computing

A problem I'm grappling with:
Seeing big data machinery solve a large-scale problem in HEP. Moving algorithms and software infrastructure to HPC within the intensity frontier.

I've got my eyes on:
New memory architectures that are beginning to be available on HPC systems. The new IBM/Nvidia machines. Distributed machine learning.

I want to know more about:
Solutions to the problems I'm grappling with and things I got my eyes on.





Amit H Kumar

HPC Technical Lead *at* Southern Methodist University
ahkumar {at} mail {dot} smu {dot} edu
Ph: 214-768-4969

My research:
Computing needs and capabilities of researchers in and around High Performance Computing.

My expertise is:
Computer Science and High Performance Computing

A problem I'm grappling with:
How to extend computing capabilities of ATLAS tier-3 requirements at SMU. In addition find any development opportunities from CS perspective that might be of interest to SMU.

I've got my eyes on:
Opportunities.

I want to know more about:
What is the workshop all about.

SMU®

David Lange

Research Staff
Department of Physics
Princeton University
David.Lange@cern.ch

My research:
Software integration, analysis techniques, event reconstruction performance optimization, CMS experiment and DIANA project

My expertise is:
- Event generation, detector simulation, event reconstruction techniques in HEP

A problem I'm grappling with:
- Leveraging scientific python for HEP

I've got my eyes on:
- The vast, but unknown to expert application develers, resource usage of analysis applications in HEP (or at least CMS)

I want to know more about:
- Synergies of HEP techniques with academic+industry community developed tools and applications

CMS Compact Muon Solenoid

PRINCETON UNIVERSITY

dianahep

David Lesny

Senior Research Physicist (Retired)
High Energy Physics
University of Illinois at Urbana-Champaign

ddl@illinois.edu

My research:

Systems Administrator for Midwest Tier 2

My expertise is:

Linux system administration
HTCondor, dCache
Large computing clusters

A problem I'm grappling with:

Integrating the Atlas workflows into Bluewaters

I've got my eyes on:

I want to know more about:

ILLINOIS

mwt2.org

ATLAS EXPERIMENT

Miron Livny

John P. Morgridge Professor of Computer Science
University of Wisconsin-Madison
miron@cs.wisc.edu

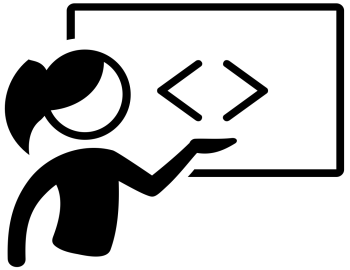
My research:
DIstributed High Throughput Computing

My expertise is:
Distributed Computing framework and software tools

A problem I'm grappling with:
How to avoid reasoning about distributed systems at the level of implementations

I've got my eyes on:
Simple abstractions

I want to know more about:
How the engage the HEP community in a discussion about distributed computing principles



Abhijit Majumder

<Your title and contact details go here.
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My research:
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My expertise is:
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A problem I’m grappling with:
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I’ve got my eyes on:
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I want to know more about:
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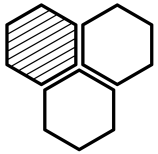


Carlos Maltzahn

Adjunct Professor
Director, Center for Research in Open Source Software
University of California, Santa Cruz
carlosm@ucsc.edu
http://users.soe.ucsc.edu/~carlosm

My research:
Big data storage and processing, scalable data management, and distributed system performance management, reproducibility in systems research, computational arithmetic (Unum).

My expertise is:
Distributed systems, storage systems, performance management, network intermediaries, open-source software engineering

A problem I'm grappling with:
How to enable applications and storage systems to negotiate smart data access strategies.

I've got my eyes on:
How to make performance in large-scale storage systems predictable and reservable.

I want to know more about:
How to intelligently manage shared storage space "commons".

Baskin Engineering UC SANTA CRUZ

ceph

CROSS
cross.ucsc.edu

BIG WEATHER WEB

Popper
falsifiable.us

Sumanth Mannam

Software Developer
University of Chicago
Depaul University
sumanth1105@gmail.com

My research:

- Development of software tools and infrastructure for data management and reproducibility of research results.

My expertise is:

- Cloud Services
- SaaS Application Development
- Machine Learning
- Programming & Algorithms

A problem I'm grappling with:
Development of software for efficient data management, sharing and reproducibility of scientific research results.

I've got my eyes on:
Reproducible data analysis - Requirements & Methodologies

I want to know more about:
Potential to apply data management and reproducibility techniques to various branches of physics.

THE UNIVERSITY OF CHICAGO

Shawn McKee

Research Scientist
Department of Physics
University of Michigan
Ann Arbor, Michigan 48109-1120
smckee@umich.edu

My research:
High-energy physics (HEP) with an interest in dark-matter, dark-energy and cosmology
Cyber-infrastructure to support HEP with a focus on networking, grid-computing and storage infrastructures.

My expertise is:
Networking for high-energy physics, storage infrastructures, grid-computing and associated middleware, tools and applications.

A problem I'm grappling with:
Supporting multi-institutional collaboration when big data is involved

I've got my eyes on:
Automation tools and processes capable of consuming diverse types of data and extracting useful data for optimization, management and debugging of complex infrastructures.

I want to know more about:
New tools, projects and methodologies related to areas I work in

UNIVERSITY OF MICHIGAN

ATLAS Great Lakes Tier 2
AGLT2

Mark Neubauer

Associate Professor of Physics
University of Illinois at Urbana-Champaign
Principal Investigator for S2I2-HEP and DASPOS Projects
Executive Team, Resources Manager for Open Science Grid
PI, Midwest Tier-2 Computing Center (U. Illinois)
msn@illinois.edu *@MarkSNeubauer*
http://physics.illinois.edu/people/directory/profile/msn

My research:
Searches for new phenomena at the Large Hadron Collider (LHC). Methods for fast triggering at hadron colliders

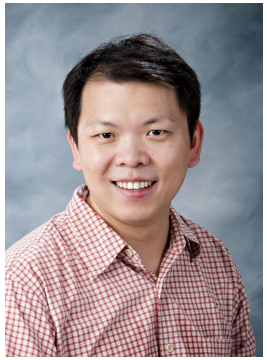
My expertise is:
High-energy particle physics (HEP), electronics for trigger systems in particle physics, scientific computing

A problem I'm grappling with:
Null results in new physics searches at the LHC. How we can make more sensitive searches that cast a wider net, particularly on the search for dark matter

I've got my eyes on:
Physics prospects of the High-luminosity LHC upgrade and the software & computing challenges for that era. Visualization as a research tool. Machine learning applications for HEP. Analysis preservation and reuse.

I want to know more about:
Ways that HEP and Computer Science (CS) can better collaborate for mutual benefit. Opportunities for industry trends and CS research to disrupt the status quo in our approaches to computing to facilitate our HEP research

Open Science Grid mwt2.org CERN ATLAS EXPERIMENT S2I2 HEP DASPOS



Nan Niu

Assistant Professor
EECS, University of Cincinnati
nan.niu@uc.edu
http://homepages.uc.edu/~niunn/

My research:
Software engineering, especially how software developers (including end-user programmers) work together to fulfill their goals

My expertise is:
Requirements engineering
Developers' information foraging

A problem I'm grappling with:
Doing *social* software engineering

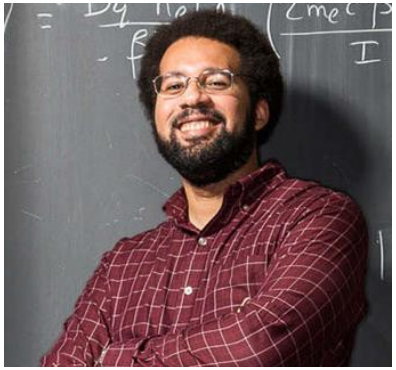
I've got my eyes on:
Reducing developers' information needs in 'social coding'

I want to know more about:
How the HEP community build, maintain, use, retire software

UNIVERSITY OF Cincinnati

github SOCIAL CODING

stackoverflow



Peter Onyisi

Assistant Professor, University of Texas at Austin
ponyisi@utexas.edu

My research:
Higgs physics (and other things) at the LHC. Manager of ATLAS data quality monitoring development.

My expertise is:
Running Tier-3s in clouds; LHC software on “non-standard” x86 systems

A problem I’m grappling with:
Training neural nets to reproduce probability density functions for matrix element analyses

I’ve got my eyes on:
Monitoring in multithreaded HEP frameworks

I want to know more about:
Scenarios for making best use of special resources (e.g. Xeon Phis)

Reliable execution & data propagation

TEXAS
The University of Texas at Austin

ATLAS EXPERIMENT

Marc Paterno

Computer Science Researcher at Fermilab.
Leader of Tools and Advanced Computing Group.
Leader of art *framework project.*
paterno@fnal.gov

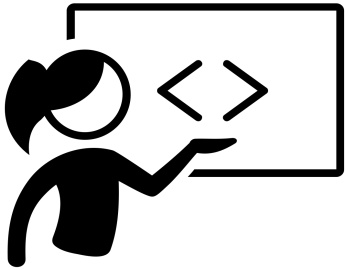
My research:
Design and implementation of event-processing frameworks for non-collider experiments, including the neutrino and muon programs at Fermilab.

My expertise is:
C++; large-scale program design; requirements gathering.

A problem I'm grappling with:
Support of multiple independent experiments with a single framework. Moving that framework to deal with the coming "exascale era".

I've got my eyes on:
Functional and implicitly parallel programming systems; distributed programming systems.

I want to know more about:
Where the needs of the programs my group supports fits in the what the LHC experiments need.



Don Petravick

<Your title and contact details go here.
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My research:
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My expertise is:
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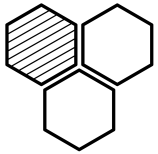

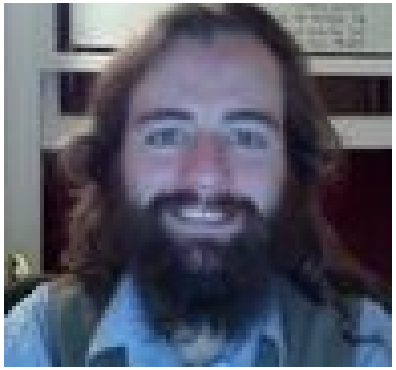

Jim Pivarski

DIANA-HEP team member at Fermilab's LPC
Princeton University
pivarski@fnal.gov

My research:

- Software tools for end-user physicists
- Interface between HEP software and Big Data/Machine Learning software from industry

My expertise is:
Physics analysis, Big Data ecosystem, parallelization techniques, programming language design.

A problem I'm grappling with:
Developing a declarative query language expressive enough for HEP.

I've got my eyes on:
The varied ways physicists work; determining what coding styles seem natural to physicists.

I want to know more about:
High performance computing.

PRINCETON UNIVERSITY

diana hep

CMS Compact Muon Solenoid

Jeff Porter

Research Staff & Computing Systems Engineer with Nuclear Science and NERSC Divisions at LBNL
ALICE USA Computing Project Lead
NERSC PI for ALICE and STAR
rjporter@lbl.gov

My research:
Developing tools and infrastructure for data processing and analysis in heavy ion physics for ALICE at the LHC and STAR at RHIC

My expertise is:
Distributed, data-intensive computing. ALICE grid systems and operations.

A problem I'm grappling with:
Seamless integration of distributed processing infrastructure with HPC systems

I've got my eyes on:
Multi-core pipeline processing, techniques for data caching and container use.

I want to know more about:
Machine learning techniques for both data analysis and adaptive processing

BERKELEY LAB
Lawrence Berkeley National Laboratory

NERSC

ALICE

STAR

AliEn @GRID

Benedikt Riedel

Scientific Programmer
University of Chicago

My research:
Support for experiments new to the OSG

My expertise is:
Distributed computing for particle physics and astrophysics experiments

A problem I'm grappling with:
Unified submit interfaces for smaller collaborations, data management for 100-200 members collaborations

I've got my eyes on:
Analysis toolchains and file formats beyond root

I want to know more about:
Software design challenges for non-LHC experiments

THE UNIVERSITY OF CHICAGO

Open Science Grid

Henry F Schreiner

Postdoctorial researcher at the University of Cincinnati working with the LHCb experiment at CERN.
henry.schreiner@cern.ch
henry.schreiner@uc.edu

My research:

- LHCb Event Model for the upgrade era
- Amplitude analysis of Λ_c decay modes
- D_0 to K3π mixing measurement
- Massively parallel analysis tools

My expertise is:
Charm physics and mixing, Cosmic ray physics, modern C++ and Python development, multithreaded computing

A problem I'm grappling with:
Learning about the LHCb software stack and procedures, and adding documentation

I've got my eyes on:
Massively parallel processing, machine learning, reproducible analysis toolchains

I want to know more about:
High performance computing

LHCb

#!plumbum

ANACONDA

UNIVERSITY OF Cincinnati

Sally Seidel

Professor of Physics, University of New Mexico
seidel@unm.edu

My research:
Searches for new physics with heavy quark signatures using ATLAS; development of radiation hard tracking and vertexing detectors and interconnects for HEP applications.

I want to know more about:
Opportunities to expand my group's contributions to LHC experimental infrastructure beyond particle tracking systems development

Elizabeth Sexton-Kennedy

Software and Comupting Coordinator for the CMS Experiment
Fermilab Staff - Computing Services Architect
sexton@fnal.gov

My research:
Hadron Colider Physics first on CDF and now on CMS. I'm the architect of CMSSW the production software of CMS: https://github.com/cms-sw/cmssw
I'm on the advisory board of LSST, AMCL

My expertise is:
Large scale scientific software and computing solutions.

A problem I'm grappling with:
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I've got my eyes on:
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I want to know more about:
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Fermilab
50 Years of Discovery

HSF
HEP Software Foundation

CERN

CMS
Compact Muon Solenoid

Mike Sokoloff

Professor of Physics, University of Cincinnati. Primary focus of research is flavor physics using data collected by the LHCb experiment at CERN (billions and billions of events).

My research: *Related software development efforts supported by the NSF's PIF program (for GPU-friendly algorithm development) and the SI2 program (for DIANA-HEP -- data intensive analysis tools and the S2I2 Conceptualization Project).*

My expertise is: Charm physics related to particle-antiparticle mixing and CP-violation.

A problem I'm grappling with: Understanding the details of doing time-dependent amplitude analyses for multi-body decays.

I've got my eyes on: Potential performance benefits of using vectorization and highly parallel architectures for software triggers circa 2020-2021.

I want to know more about: How we can compare life-cycle costs of commercial clouds with bespoke resources circa 2020 - 2030.

UNIVERSITY OF Cincinnati

LHCb

dianahep

S2I2 HEP

John Towns

PI and Project Director, XSEDE
Executive Director, Science & Technology, NCSA

Deputy CIO for Research IT
University of Illinois

Email: jtowns@ncsa.illinois.edu
Phone: +1-217-244-3228

My research:
What I do would not be considered “research” by many at this meeting….

My expertise is:
Building research support infrastructure; managing large infrastructure projects: XSEDE, campus Research IT, community building.

A problem I’m grappling with:
Bridging the efforts of multiple players in the community to bring coherence and greater impact.

I’ve got my eyes on:
Emergence of the Research IT Profession; workforce development for the same.
Emergence of national data infrastructure in the US.

I want to know more about:
What collaborations can be built to support this effort and maximize impact?

NCSA

XSEDE
Extreme Science and Engineering Discovery Environment

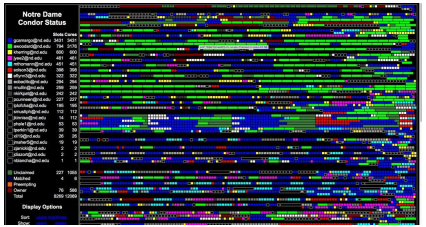
RESEARCH IT *at* ILLINOIS

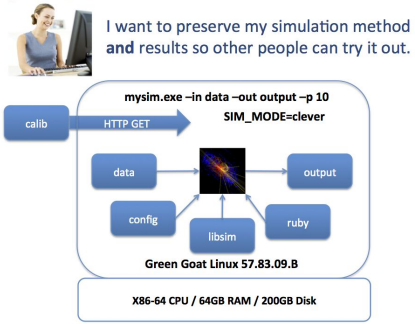
The National DATA SERVICE

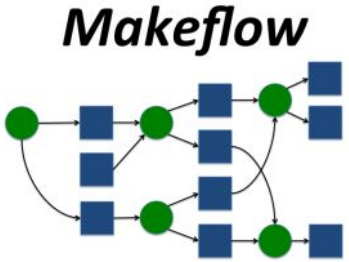
Douglas Thain

Associate Professor
University of Notre Dame
dthain@nd.edu
http://www.nd.edu/~dthain

My research:
Design of distributed systems for large scale scientific computing in fields such as high energy physics. molecular dynamics, bioinformatics





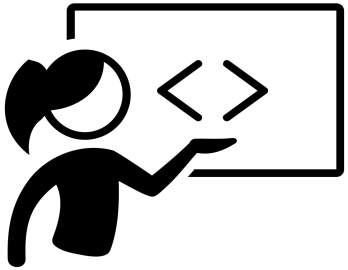


My expertise is:
Workflows, file systems, high throughput computing, open source software engineering.

A problem I'm grappling with:
How to reliably deploy complex systems with many dependencies without endless debugging.

I've got my eyes on:
Techniques for preservation and reproducibility of complex workflows.

I want to know more about:
How we can better align the interests, skills, and incentives of CS research in distributed systems with production computing for big science.



Matthew J Turk

<Your title and contact details go here.
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My research:
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My expertise is:
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I’ve got my eyes on:
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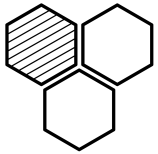


Ilija Vukotic

HEP physicist turned computing scientist at University of Chicago, Enrico Fermi Institute
ivukotic@uchicago.edu Skype: ivukotic

My research:
Federated WAN data access, data analytics, improvements of ATLAS distributed computing using machine learning techniques, event and outreach visualizations using VR.

My expertise is:
I/O, WAN, ML techniques, VR

A problem I'm grappling with:
Lack of time to do everything I want to do :)

I've got my eyes on:
Intelligent anomaly detection systems, neuromorphic computing

I want to know more about:
Local data caching, non-ROOT event data storage/analysis

THE UNIVERSITY OF CHICAGO

ATLAS EXPERIMENT

Justin M Wozniak

Computer Scientist, Argonne National Laboratory
Fellow, Computation Institute, University of Chicago
http://www.mcs.anl.gov/~wozniak
wozniak@mcs.anl.gov

My research:
Developing scalable workflow systems, e-science tools and techniques, in situ analysis, modeling light source workloads

My expertise is:
Parallel programming, scientific workflows, modeling computer systems

A problem I'm grappling with:
Coupling complex codes, spanning workflow use cases and requirements

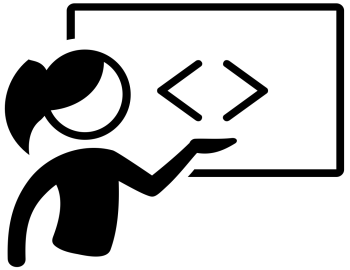
I've got my eyes on:
Exascale science cases, experiment-in-the-loop workflows, integrating the Python ecosystem

I want to know more about:
Workflow requirements and challenges, common scientific programming problems

swift

Argonne NATIONAL LABORATORY

THE UNIVERSITY OF CHICAGO



Frank Wuerthwein

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My expertise is:
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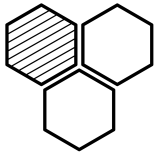


Matt Zhang

Graduate Student, High Energy Physics, UIUC
mzhang60@illinois.edu

My research:

- FPGA development for track fitting in ATLAS detector at CERN
- Searches for new physics beyond the standard model

My expertise is:

- High Energy Physics data analysis
- Machine learning
- FPGA development

A problem I'm grappling with:

- Using evolvable hardware to create self-programming FPGAs

I've got my eyes on:

- Machine learning in brain-computer interface applications

I want to know more about:

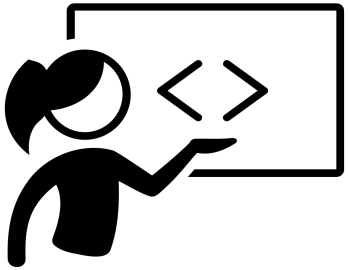
- Uses of supercomputer modelling in HEP analysis

ILLINOIS
1867
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

CERN

ATLAS EXPERIMENT

Argonne NATIONAL LABORATORY



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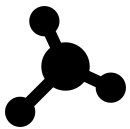

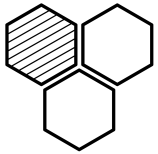

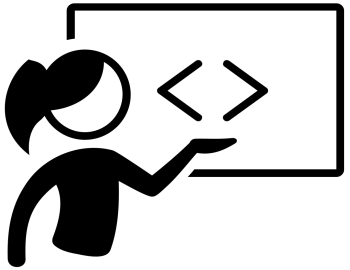

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A problem I’m grappling with:
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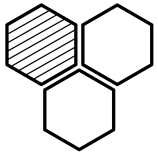

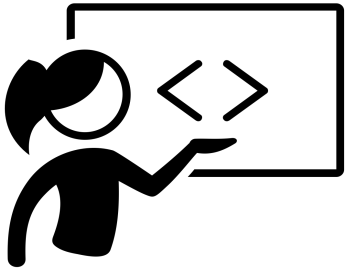

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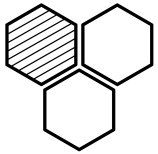

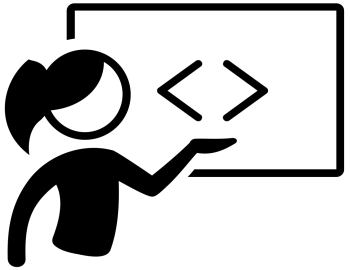

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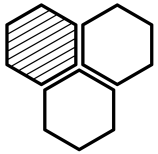

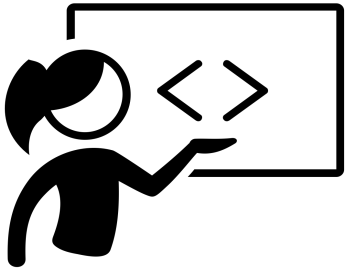

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My research:
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My expertise is:
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