

Monday, 22 July

PH 111N

08:30 Workshop

Excelling at Julia: basics and beyond

**Huda Nassar
Jane Herriman**

13:30 Workshop

Writing a package – a thorough guide

**Fredrik Ekre
Kristoffer Carlsson**

Monday, 22 July

PH 211N

08:30 Workshop

Intermediate Julia for Scientific Computing

David P. Sanders

13:30 Workshop

Parallel Computing Workshop

**Avik Sengupta
Matt Bauman**

Monday, 22 July

PH 203N

08:30 Workshop

Machine Learning Workshop

Matt Bauman

13:30 Workshop

Handling Data with DataFrames.jl

Bogumił Kamiński

Monday, 22 July

PH 103N

08:30 Workshop

Solving Differential Equations in Julia

Chris Rackauckas

13:30 Workshop

Pharmaceutical Modeling and Simulation with Pumas

**Chris Rackauckas
Vijay Ivaturi**

Tuesday, 23 July

Room 349

- 11:00 Fredrik Ekre**
Pkg, Project.toml, Manifest.toml and Environments
- 11:30 Rory Finnegan**
FilePaths: File system abstractions and why we need them
- 11:40 Jay Dweck**
Ultimate Datetime
- 11:50 Ahan Sengupta**
Smart House with JuliaBerry
-
- 14:30 Anthony Blaom**
MLJ - Machine Learning in Julia
- 15:00 Valentin Mari, Nicolás Monzón, Adán Mauri Ungaro, Demian Panigo**
Merging machine learning and econometric algorithms to improve feature selection with Julia
- 15:10 Jun Tian**
Let's Play Hanabi!
- 15:20 Paulito Palmes**
TSML (Time Series Machine Learning)
-
- 15:45 Ludovic Räss**
Porting a massively parallel Multi-GPU application to Julia: a 3-D nonlinear multi-physics flow solver
- 16:15 Elliot Saba**
XLA.jl: Julia on TPUs
- 16:45 James Bradbury**
Targeting Accelerators with MLIR.jl
- 16:55 Nicolau Leal Werneck**
SIMD and cache-aware sorting with ChipSort.jl
- 17:05 Ranjan Anantharaman, Sungwoo Jeong**
Generic Sparse Data Structures on GPUs
- 17:15 Rohan McLure**
Array Data Distribution with ArrayChannels.jl
- 17:25 Tom Kwong**
High-Performance Portfolio Risk Aggregation

Tuesday, 23 July
NS Room 130

- 08:30 JuliaCon Committee**
Opening Remarks
- 08:40 Professor Madeleine Udell**
* Keynote: Professor Madeleine Udell
- 09:30 Sebastian Pfitzner, Tim Holy**
Debugging code with JuliaInterpreter
- 10:00 Paul Petersen**
Sponsor Address: Intel
-
- 10:05 Viral B. Shah**
Julia Survey Results
-
- 13:30 Dr Cynthia J Musante**
* Keynote: Dr Cynthia J Musante

July 23rd				Breakfast	7:30	8:30	SMC 2nd floor Lobby
Morning Coffee Break				10:20	11:00	SMC 2nd floor Lobby	
Lunch				12:05	13:20	Explore Baltimore!	
Afternoon Coffee Break				15:30	15:45	SMC 2nd floor Lobby	

Birds of a feather sessions

- 11:00** *Dynamical Modeling in Julia*
Chris Rackauckas
- 14:30** *JuliaDB Code and Chat*
Josh Day
- 15:45** *Julia and NumFocus, a discussion of how money works*
Viral B. Shah
- 16:35** *Cassette and company – Dynamic compiler passes*
Jarett Revels, Valentin Churavy

Tuesday, 23 July
Elm A

- 11:00 Katharine Hyatt, Matthew Fishman**
Intelligent Tensors in Julia
- 11:30 Michiel Stock**
A general-purpose toolbox for efficient Kronecker-based learning

- 11:40 Jeff Bezanson**
Thread Based Parallelism part 2
- 11:50 Jameson Nash**
Thread Based Parallelism part 1
-

- 14:30 Morten Piibeileht**
Generating documentation: under the hood of Documenter.jl

- 15:00 Fredrik Ekre**
Literate programming with Literate.jl
- 15:10 Dominique Luna**
Formatting Julia
-

- 15:45 Alex Lew**
Cleaning messy data with Julia and Gen

- 16:15 Brandon Taylor**
LightQuery.jl

- 16:45 Jacob Quinn**
State of the Data: JuliaData

- 16:55 Mary McGrath**
Prototyping Visualizations for the Web with Vega and Julia

- 17:05 Simon Danisch**
A Showcase for Makie

Dinner Cruise – 6:45 - 10:00 PM

SPIRIT
OF BALTIMORE

Tuesday, 23 July
Elm B

- 11:00 Robin Deits**
The Linguistics of Puzzles: Solving Cryptic Crosswords in Julia

- 11:30 Jeffrey Sarnoff**
Counting On Floating Point

- 11:40 Bogumił Kamiński, Przemysław Szufel**
Analyzing social networks with SimpleHypergraphs.jl

- 11:50 Takuya Kitazawa**
Recommendation.jl: Building Recommender Systems in Julia
-

- 14:30 Tucker McClure**
A New Breed of Vehicle Simulation

- 15:00 Martin Otter, Andrea Neumayr**
Modia3D: Modeling and Simulation of 3D-Systems in Julia

- 15:10 Brian Jackson**
TrajectoryOptimization.jl: A testbed for optimization-based robotic motion planning

- 15:20 Sam Claassens, Dehann Fourie**
Non-Gaussian State-estimation with JuliaRobotics/Caesar.jl
-

- 15:45 David Widmann**
Solving Delay Differential Equations with Julia

- 16:15 Dheepak**
Open Source Power System Production Cost Modeling in Julia

- 16:45 Chris Rackauckas**
Real-time prediction and control of dynamical models via machine learning

- 17:15 Andrew Rosenberg**
HydroPowerModels.jl: A Julia/JuMP Package for Hydrothermal economic dispatch Optimization

- 17:25 Michel Schanen**
Modeling in Julia at Exascale for Power Grids

Wednesday, 24 July

Room 349

11:00 Roger Luo

Yao.jl: Extensible, Efficient Quantum Algorithm Design for Humans.

11:30 David P. Sanders

Guaranteed Constrained and unconstrained global optimization in Julia

11:40 Michael Droettboom

Pyodide: The scientific Python stack compiled to WebAssembly

11:50 William L. Fredericks, Venkat Viswanathan, Shashank Sripad, Matthew Guttenberg

Julia for Battery Model Parameter Estimation



14:30 Rebecca Sarfati

Heterogeneous Agent Dynamic Stochastic General Equilibrium (DSGE) Models in Julia at the Federal Reserve Bank of New York

15:00 Ethan Matlin

"Online" Estimation of Macroeconomic Models



15:45 Mike Innes

Differentiate All The Things!

16:15 Avik Pal

Differentiable Rendering and its Applications in Deep Learning

16:25 Jesse Bettencourt

Neural Ordinary Differential Equations with DiffEqFlux

16:35 Elisabeth Roesch

Fitting Neural Ordinary Differential Equations with DiffeqFlux.jl

17:05 Ramchandran Muthukumar

Randomized Sketching for Approximate Gradients : Applications to PDE Constrained Optimization and Backpropagation.

17:15 Filippo Vicentini

Neural Network states and unsupervised learning for Open Quantum Systems

17:25 Dhairyा Gandhi

Machine Learning for Social Good

Wednesday, 24 July

NS Room 130

08:40 Professor Steven G Johnson

* Keynote: Professor Steven G Johnson

09:30 Jiahao Chen

Sponsor Address: J P Morgan Chase & Co.

09:45 Stefan Karpinski

Sponsor Address: Julia Computing

09:50 Seth Bromberger

Using Julia in Secure Environments



13:30 Arch D. Robison

* Keynote: Arch D. Robison

Birds of a feather sessions

11:00

Sustainable Development and Open Source Monetization

Clark Evans

14:30

Diversity and Inclusion in Julia Community

Nathan Daly, Kelly Shen

15:45

Julia in production

Curtis Vogt

16:45

JuliaGPU

Valentin Churavy, Tim Besard

Wednesday, 24 July

Elm A

11:00 Dheepak

Why writing C interfaces in Julia is so easy*

11:30 Aaron Christianson

Backticks and the Glorious Command Literal

11:40 Patrick Kofod Mogensen

Re-designing Optim

11:50 Dai ZJ

Towards Faster Sorting and Group-by operations



14:30 Christine R Herlihy, James Fairbanks

SemanticModels.jl: not just another modeling framework

15:00 Randy Zwitch

OmniSci.jl: Bringing the open-source, GPU-accelerated relational database to Julia



15:45 Tillmann Weisser, Benoît Legat, Chris Coey, Lea Kapelevich, Juan Pablo Vielma

Polynomial and Moment Optimization in Julia and JuMP

17:30



July 24th

Breakfast	7:30	8:30	SMC 2nd floor Lobby
Poster Session + Morning Coffee Break	10:00	11:00	Room 351
Lunch	12:05	13:20	Explore Baltimore!

Afternoon Coffee Break 15:30 15:45 SMC 2nd floor Lobby

Wednesday, 24 July

Elm B

11:00 Jeff Mills

Probabilistic Biostatistics: Adventures with Julia from Code to Clinic

11:30 Virginia Spanoudaki

Slow images, fast numbers: Using Julia in biomedical imaging and beyond

11:40 Amita Varma

Brain Tumour Classification with Julia

11:50 Swakkhar Shatabda, Dewan Md. Farid

Mining Imbalanced Big Data with Julia



14:30 Clark C. Evans

DataKnots.jl - an extensible, practical and coherent algebra of query combinators

15:00 David Anthoff

Queryverse - Under the Hood



15:45 Elwin van 't Wout, Kevin S Bonham

Raising Diversity & Inclusion among Julia users

17:30



Thursday, 25 July

Room 349

- 11:00 Stefan Karpinski**
The Unreasonable Effectiveness of Multiple Dispatch

- 11:30 Joshua Ballanco**
Julia's Killer App(s): Implementing State Machines Simply using Multiple Dispatch

- 11:40 Xingjian Guo**
What I learned from developing ExponentialUtilities.jl

- 11:50 Roger Luo**
JuliaCN: A community driven localization group for Julia in China



- 14:30 Scott Haney**
Writing maintainable Julia code

- 15:00 Tim Wheeler**
How We Wrote a Textbook using Julia



- 15:45 Cameron Pfiffer**
Turing: Probabilistic Programming in Julia

- 16:15 Will Tebbutt**
Gaussian Process Probabilistic Programming with Stheno.jl

- 16:45 Chad Scherrer**
Soss.jl: Probabilistic Metaprogramming in Julia

- 17:15 Marco Cusumano-Towner**
Gen: a general-purpose probabilistic programming system with programmable inference built on Julia

- 17:25 Cédric St-Jean-Leblanc**
A probabilistic programming language for switching Kalman filters

Thursday, 25 July

NS Room 130

- 08:40 Professor Heather Miller**
* Keynote: Professor Heather Miller

- 09:30 Jeff Bezanson**
What's Bad About Julia

- 10:00 Vijay Ivaturi**
Sponsor Address: University of Maryland



- 13:30 Dr Steven Lee**
* Keynote: Dr Steven Lee

July 25th					
Breakfast	7:30	8:30	SMC 2nd floor Lobby		
Poster Session + Morning Coffee Break	10:10	11:00	Room 351		
Lunch	12:00	13:15	Explore Baltimore!		
Afternoon Coffee Break	15:30	15:45	SMC 2nd floor Lobby		

Birds of a feather sessions

- 11:00** *Performant parallelism with productivity and portability.*
Alan Edelman, Andreas Noack, Chris Hill, Lucas Wilcox

- 14:30** *Julia in Healthcare*
Vijay Ivaturi, Chris Rackauckas

- 15:45** *Package Management*
Stefan Karpinski

- 16:45** *Julia in Astronomy*
Mosè Giordano

Thursday, 25 July

Elm A

- 11:00 Shashi Gowda**
Julia + JavaScript = <3

- 11:30 Mohammed El-Beltagy, Amgad Naiem**
Julia web servers deployment

- 11:40 Bogumił Kamiński**
A case study of migrating Timelineapp.co to the Julia language

- 11:50 Renee Spear**
The Julia Language 1.0 Ephemeris and Physical Constants Reader for Solar System Bodies



- 14:30 Nathan Daly**
If Runtime isn't Funtime: Controlling Compile-time Execution

- 15:00 Takafumi Arakaki**
Transducers: data-oriented abstraction for sequential and parallel algorithms on containers



- 15:45 Yingbo Ma**
Efficient Stiff Ordinary Differential Equation Solvers for Quantitative Systems Pharmacology (QsP)

- 16:15 Vaibhav Dixit**
Simulation and estimation of Nonlinear Mixed Effects Models with PuMaS.jl

- 16:45 Bram De Jaeger**
An advanced electrodialysis process model in the Julia ecosystem

- 16:55 Shubham Maddhashiya**
IVIVC.jl: In vitro – in vivo correlation module as part of an integrated pharmaceutical modeling and simulation platform

- 17:05 Vasco Verissimo, Laurent Heirendt**
GigaSOM.jl: Huge-scale, high-performance flow cytometry clustering in Julia

- 17:15 benjamin chu**
MendelIHT.jl: How to fit Generalized Linear Models for High Dimensional Genetics (GWAS) Data

- 17:25 Alec Bills**
Electrifying Transportation with Julia

Thursday, 25 July

Elm B

- 11:00 David P. Sanders**
Interval methods for scientific computing in Julia

- 11:30 Daniel Bahrathy**
Implicit Geometry with Multi-Dimensional Bisection Method

- 11:40 Alberto Paoluzzi**
Computational topology and Boolean operations with Julia sparse arrays

- 11:50 Michael Reed**
Geometric algebra in Julia with Grassmann.jl



- 14:30 David Anthoff, Lisa Rennels, Cora Kingdon**
Mimi.jl – Next Generation Climate Economics Modeling

- 15:00 Charlie Kawczynski, Simon Byrne**
The Climate Machine: A New Earth System Model in Julia



- 15:45 Harrison Grodin**
Symbolic Manipulation in Julia

- 16:15 Lyndon White (@oxinabox)**
Building a Debugger with Cassette

- 16:45 Valentin Churavy**
Static walks through dynamic programs – a conversation with type-inference.

- 16:55 Valentin Churavy**
Concolic Fuzzing – Or how to run a theorem prover on your Julia code

- 17:05 Tim Holy**
Analyzing and updating code with JuliaInterpreter and Revise

- 17:15 Kristoffer Carlsson**
TimerOutputs.jl - a cheap and cheerful instrumenting profiler

- 17:25 Simon Danisch**
PackageCompiler