
RUTGERS
TWO SIGMA
ML4Jets2022
Rutgers University
November 1-4
Welcome and Introduction
David Shih

Welcome to the 5th “annual” ML4Jets!

- 2017: Lawrence Berkeley Lab — 3 days, ~29 talks
- 2018: Fermilab — 3 days, ~32 talks
- 2020: NYU — 3 days, ~55 talks
- 2021: Heidelberg (hybrid) — 3 days, ~96 talks
- 2022: Rutgers — **4 days, ~86 talks**

A growing conference and community!

Thanks to the organizing committees…

Local Organizing Committee:
Matt Buckley (Rutgers)
John Paul Chou (Rutgers)
Eva Halkiadakis (Rutgers)
David Shih (Rutgers)
Scott Thomas (Rutgers)




International Advisory Committee:
Florencia Canelli (University of Zurich)
Kyle Cranmer (NYU)
Vava Gligorov (LPNHE)
Gian Michele Innocenti (CERN)
Ben Nachman (LBNL)
Mihoko Nojiri (KEK)
Maurizio Pierini (CERN)
Tilman Plehn (Heidelberg)
David Shih (Rutgers)
Jesse Thaler (MIT)
Sofia Vallescorsa (CERN)

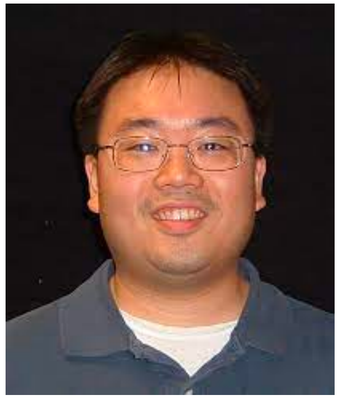


special shout out for coming in person! :)

…and special thanks to our dedicated staff…

Christina Pettola

Dayna Kobrzynski



James Tuan

+ LSC events staff (Anthony, Naquan, Tim, Antonio and their teams)

…and very special thanks to our sponsors :)

RUTGERS
School of Arts and Sciences
SEARCH PHYSICS | SEARCH RUTGERS
Physics & Astronomy

New High Energy Theory Center (NHETC)

2σ TWO SIGMA

[https://www.twosigma.com/]

Wednesday before lunch

Timetable

Tue 01/11 | **Wed 02/11** | Thu 03/11 | Fri 04/11 | All days

Print | PDF | Full screen | Detailed view | Filter

Session legend

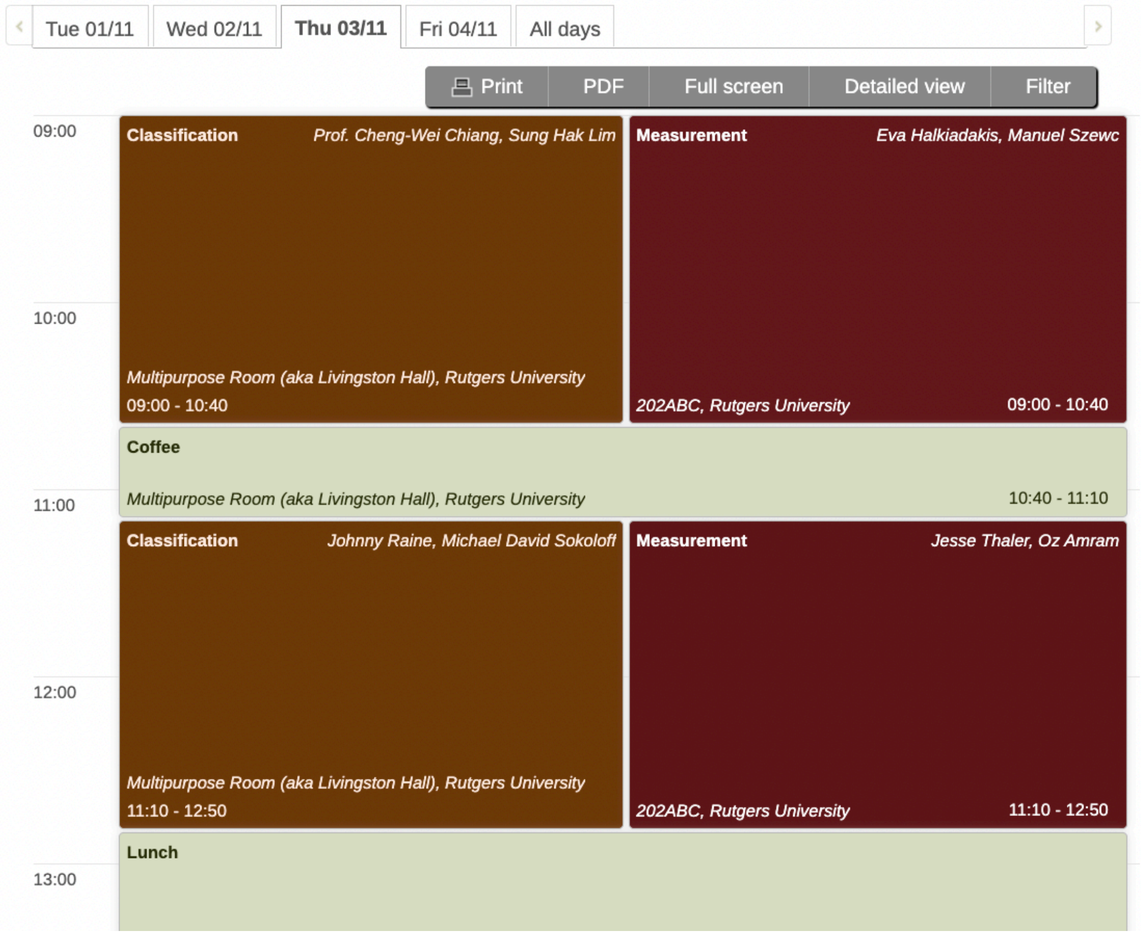
Anomaly Detection | Generative Models -- Detector Level | ML Keynote Talk

Danilo Rezende, ML Keynote Talk

Followed by Panel Discussion
on
“ML connections between
industry and HEP”

09:00	**Introduction to Anomaly Detection**	*Dr Barry Dillon*	
	Multipurpose Room (aka Livingston Hall), Rutgers University	09:00 - 09:25	
	Results from Unsupervised Machine Learning in an ATLAS Dijet Resonance Search	*Julia Lynne Gonski*	
	Multipurpose Room (aka Livingston Hall), Rutgers University	09:25 - 09:45	
	A Normalized Autoencoder for LHC triggers	*Luigi Favaro*	
10:00	*Multipurpose Room (aka Livingston Hall), Rutgers University*	09:45 - 10:05	
	Robust anomaly detection using NuRD	*Abhijith Gandrakota*	
	Multipurpose Room (aka Livingston Hall), Rutgers University	10:05 - 10:25	
	Challenges for unsupervised anomaly detection in particle physics	*Katherine Fraser*	
	Multipurpose Room (aka Livingston Hall), Rutgers University	10:25 - 10:45	
	Coffee		
11:00	*Multipurpose Room (aka Livingston Hall), Rutgers University*	10:45 - 11:15	
	ML Keynote Talk -- Generative models, manifolds and symmetries: From QFT to molecules	*Danilo Rezende*	
	Multipurpose Room (aka Livingston Hall), Rutgers University	11:15 - 11:55	
	Panel Discussion	*Danilo Rezende et al.*	
12:00	*Multipurpose Room (aka Livingston Hall), Rutgers University*	11:55 - 12:25	
	Lunch		
13:00			

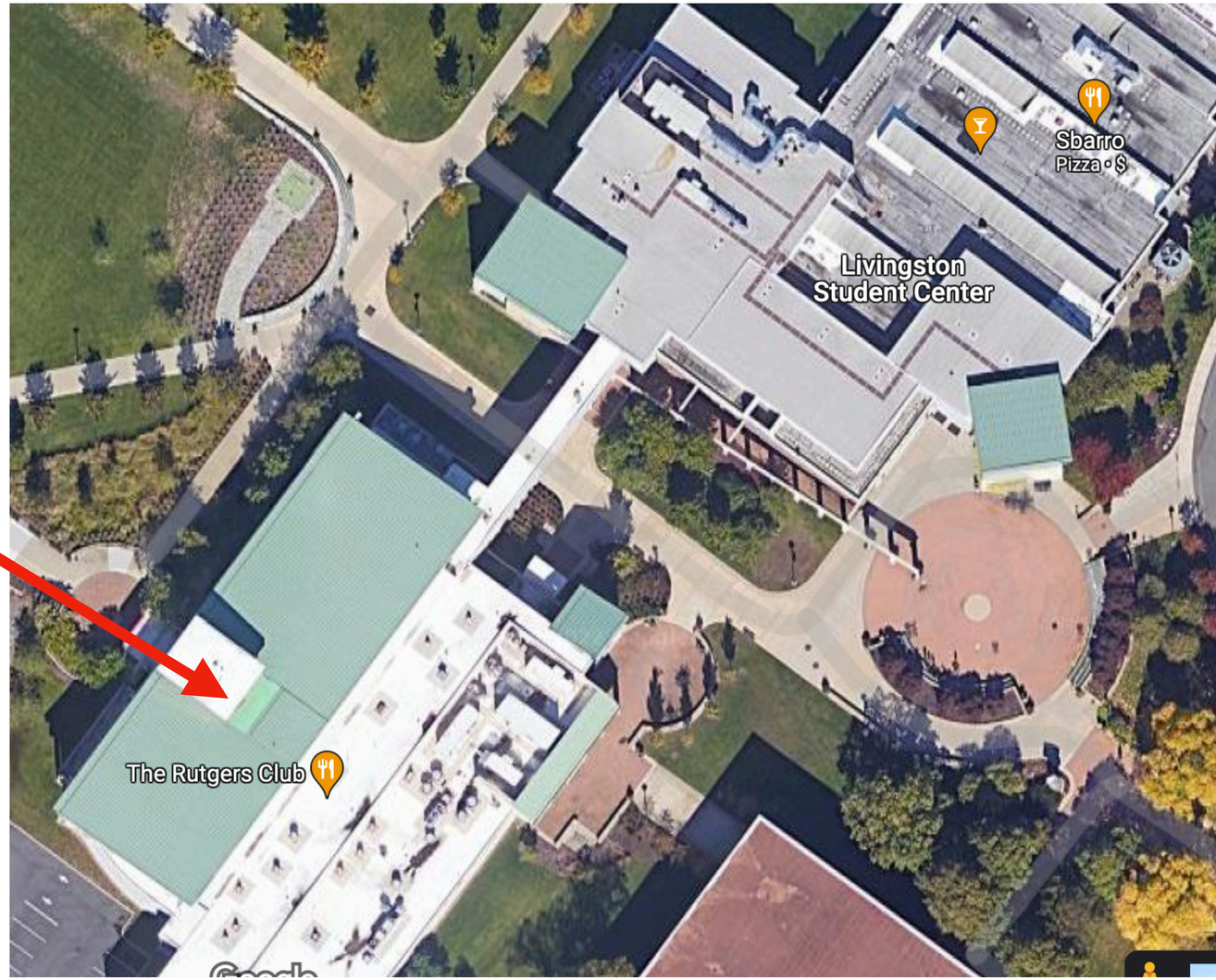
Thursday and Friday mornings



- “Double-track” sessions here (multipurpose room) and in 202ABC (upstairs)

Welcome Reception

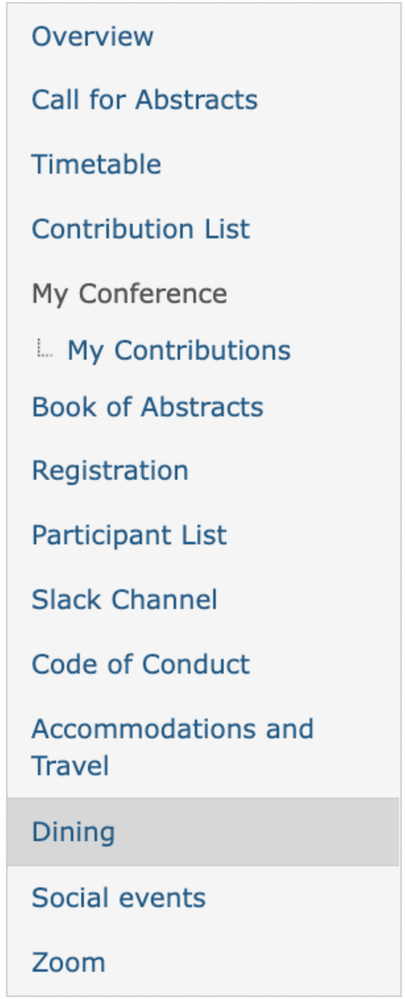
- Welcome Reception **<u>today</u>**
  6:15-7:15 at the **Rutgers Club**
- Hors d’oeuvres, wine, and beer



Conference Dinner

- Conference dinner **Thursday** 7-10pm
- Harvest Moon in downtown New Brunswick
- Participants will need to contribute $30 at the door (cash preferred)

Dining options



Dining

- Lunch -- see here for the lunch options on Livingston Campus
- Dinner -- there are many good places to eat in and around New Brunswick. See here for a (partial) list of recommendations in New Brunswick.

Lunch options near Livingston Student Center

- **Henry's Diner** -- all-day breakfast, coffee & sandwiches in a retro setting
- **Hoja Asian Fusion** -- restaurant offering Asian-American and Traditional Chinese classics
- **Qdoba** -- simple Mexican counter-serve chain for burritos, tacos & more
- **Rutgers Club** – lunch buffet (~$22), open to the public
- **Kilmer's Market** – convenience store with sandwiches and salads to-go
- **Dunkin Donuts (located inside LSC)**
- **Sbarro (located inside LSC)**

Wi-fi [https://it.rutgers.edu/ruwireless/]

RUWireless

This non-encrypted wireless network is made available for guests and onboarding to RUWireless Secure

Get connected

Eduroam

Members of the Rutgers community get secure wireless access when visiting other member schools.

Learn more

Rutgers people

Visitors

Code of Conduct [https://iris-hep.org/about/code-of-conduct]

- Let’s be respectful, welcoming, inclusive. Harrassment will not be tolerated.
- Complaints can be sent to any of the organizers.

- Foster an open, productive, harassment-free environment for everyone.
- Be welcoming and support people of all backgrounds and identities, immigration status, social and economic class, educational level, sex, sexual orientation, gender identity and expression, age, physical appearance, family status, technological choices, academic discipline, political views, religion, mental ability, and physical ability.
- Be considerate. Your work will be used by other people, and you in turn will depend on the work of others. Any decision you take will affect users and colleagues, and you should take those consequences into account when making decisions. Remember that we’re a world-wide community. You may be communicating with someone with a different primary language or cultural background.
- Be respectful. Not all of us will agree all the time, but disagreement is no excuse for poor behavior or poor manners. We might all experience some frustration now and then, but we cannot allow that frustration to turn into a personal attack. It’s important to remember that a community where people feel uncomfortable or threatened is not a productive one.
- Respect the work of others. We recognize the acknowledgment/citation requests of the original authors. As authors, we are explicit about how we want our own work to be cited or acknowledged.
- Be considerate in the words you choose. Be kind to others. Do not insult or put down other community members. Harassment and other exclusionary behavior are not acceptable.
- When we disagree, try to understand why. Disagreements, both social and technical, happen all the time and the IRIS-HEP community is no exception. Try to understand where others are coming from, as seeing a question from their viewpoint may help find a new path forward. And don’t forget that it is human to err: blaming each other doesn’t get us anywhere, while we can learn from mistakes to find better solutions.
- A simple apology can go a long way. It can often de-escalate a situation, and telling someone that you are sorry is an act of empathy that doesn’t automatically imply an admission of guilt.