Welcome from all the chairs
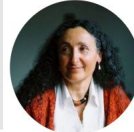
Frank Hutter
General Chair
University of Freiburg & Bosch Center for Artificial Intelligence

Mihaela van der Schaar
PC Chair
University of Cambridge

Marius Lindauer
PC Chair
Leibniz University Hannover

Isabelle Guyon
PC Chair
INRIA, University of Paris-Saclay

Joaquin Vanschoren
Tutorial Chair
Eindhoven University of Technology

Holger Hoos
Journal Track Chair
Leiden University

Wei-Wei Tu
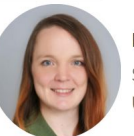Competition Chair
4Paradigm Inc., China and ChaLearn, USA

Alexander Tornede
Review Workflow Chair
University of Paderborn

Raman Arora
Local Chair
Johns Hopkins University

Colin White
Local Chair
Abacus.AI

Katharina Eggensperger
Social Chair
University of Freiburg

Matthias Feurer
Social Chair
University of Freiburg

The foundation of a new conference

- Preceded by a lot of workshops we organized
  - Yearly AutoML workshops at ICML since 2014
  - BayesOpt workshops at NeurIPS
  - MetaLearning workshops at NeurIPS
  - NAS workshops at ICLR
  - Many additional related workshops at many different conferences

- Risk of so many workshops: fragmentation of the community

- AutoML-Conf can become the overarching conference for all of these

Benefits of a more focussed conference

- Higher density of papers that feel relevant

- More-informed reviews

- Exploiting synergies between different parts of AutoML
  - E.g., advances in Bayesian optimization can directly help NAS
  - Meta-learning is relevant to HPO and NAS
  - Gradient-based NAS can inform gradient-based HPO
  - …

- Building a tighter network
  - You will see many familiar faces at AutoML-Conf every year

Let's build a happy community

- Be open, welcoming, inclusive, polite
  - Try to show interest in others' work
  - Think of your own first conference experience
    - The junior community member you don't know might become your next awesome collaborator
  - Criticism is important, but the tone makes a big difference
    - The same applies to writing reviews

- For any issues,
  please reach out to our diversity chair

Theresa Eimer   Katharina Eggensperger

COVID-19

- We'd like to avoid becoming another superspreader event
  - We have the extra risk of following ICML
  - Thanks to everyone for working together and being supportive

- CVPR had very similar counter-measures as we do
  - Mandatory vaccinations & masks
  - Also gave out free antigen tests daily
  - But vigilance often ends at dinners, in the bars, etc

- Let's be smart about this
  - Use outdoor spaces whenever possible
  - Choose wisely for lunch/dinner/drinks locations
    - E.g., https://automl.cc/restaurants/ lists restaurants with shaded outdoor seating
    - E.g., our social evening events will be on the patio, on a yacht, and in a rooftop bar

Schedule

All times are in time zone EDT (Baltimore local time)

	Monday, July 25th		Tuesday, July 26th	Wednesday, July 27th
8:00-8:30	Registration & Coffee & Bagels (Glass pavilion)		Coffee & Bagels (Glass pavilion)	Coffee & Bagels (Glass pavilion)
8:30-9:00				
9:00-9:30	Intro (Hodson 110)		Keynote by Jeff Clune *AI-generating algorithms: the fastest path to AGI?* (Hodson 110)	Keynote by Julie Josse *Missing data: from inference to imputation and prediction; an overview of the main challenges* (Hodson 110)
9:30-10:00	**Keynote by Alex Smola** *AutoGluon: Recent Advances on AutoML for Tabular Data* (Hodson 110)			
10:00-10:30			Poster spotlights (Hodson 110)	Poster spotlights (Hodson 110)
10:30-11:00	Coffee break (Glass pavilion)			
11:00-11:30	**Tutorial I: NAS 1** by Colin White & Debadeepta Dey (Hodson 110)	**Tutorial II: Learning Curves** by Felix Mohr & Jan van Rijn (Glass pavilion)	Conference posters & coffee break (Glass pavilion)	Workshop posters & coffee break (Glass pavilion)
11:30-12:00				
12:00-12:30				
12:30-13:00	Roundtable lunch (Glass pavilion)		Lunch (city, on your own)	Roundtable lunch (Glass pavilion)
13:00-13:30				
13:30-14:00				
14:00-14:30			**Keynote by Anima Anandkumar** Trinity of Explainable AI: Calibrated, Verifiable, and User-friendly AI (Hodson 110)	**Competition reports** (Hodson 110)
14:30-15:00	**Tutorial III: AutoRL** by Aleksandra Faust (Hodson 110)	**Tutorial IV: NAS 2** by Tejaswini Pedapati & Martin Wistuba (Glass Pavilion)		
15:00-15:30			Poster spotlights (Hodson 110)	Poster spotlights (Hodson 110)
15:30-16:00				
16:00-16:30	Coffee break (Glass pavilion)		Conference posters & coffee break (Glass pavilion)	Workshop posters & coffee break (Glass pavilion)
16:30-17:00	**Keynote by Chelsea Finn**: *Meta-Learning for Education* (Hodson 110)			
17:00-17:30			**Panel Discussion:** *AutoML in the age of large pretrained models* (Hodson 110)	**Keynote + panel discussion, lead by Timnit Gebru**: *On the relation of AutoML and fairness research* (Hodson 110)
17:30-18:00	**Best paper talk** (Hodson 110)			
18:00-18:30	Break		Transfer to banquet (on your own; we meet at 555 Light St, Baltimore, MD 21202 at 6:45pm, on time)	Closing (Hodson 110)
18:30-19:00	Research speed dating (Glass pavilion)			Dinner (city, on your own)
19:00-19:30				
19:30-20:00			Banquet (on a yacht in the Baltimore Inner Harbour)	
20:00-20:30	Reception (Glass pavilion)			
20:30-21:00				
21:00-21:30				Informal social event (in a bar outside)
21:30-22:00				

Schedule elements

- Lots of time for networking
  - Roundtable lunch
  - Research speed-dating
  - Reception
  - Banquet
  - Social event in a bar
- Extended, interleaved poster sessions (always with coffee)
  - Tuesday: conference & journal track posters – posters are up all day
  - Wednesday: workshop & competition posters – posters are up all day
- Monday: tutorials
- Tuesday & Wednesday: panels
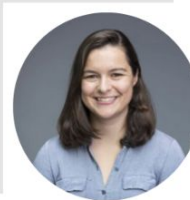 - AutoML in the age of pretrained networks
  - AutoML and fairness
- 2 keynotes per day

Keynote Speakers

Anima Anandkumar
Caltech & NVIDIA

Trinity of Explainable AI: Calibrated, Verifiable, and User-friendly AI

Jeff Clune
University of British Columbia & OpenAI

AI-generating algorithms: the fastest path to AGI?

Chelsea Finn
Stanford University

Meta-Learning for Education

Timnit Gebru
Distributed Artificial Intelligence Research Institute

On the Relationship between Fairness and AutoML (panel discussion)

Julie Josse
INRIA Ecole Polytechnique

Missing data: from inference to imputation and prediction; an overview of the main challenges
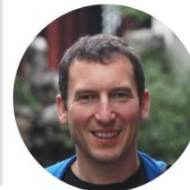
Alex Smola
Amazon Web Services

AutoGluon: Recent Advances on AutoML for Tabular Data

Virtual Attendees

- All parts in yellow
  will be live streamed

- For questions on Zoom, either
  - use the chat
    (the session chair will
    read out questions)
  - raise your hand & we'll
    signal you to unmute

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21:00-21:30				Informal social event (in a bar outside)
21:30-22:00				

- Next week on Monday, August 1st
  - Additional virtual poster session in Gather.Town
  - Tutorial 5 on "Statistical Analyses for Multi-objective Stochastic Optimization Algorithms" with Q&A

Welcome in the Name of the PC-chairs

Mihaela van der Schaar
PC Chair
University of Cambridge

Marius Lindauer
PC Chair
Leibniz University Hannover

Isabelle Guyon
PC Chair
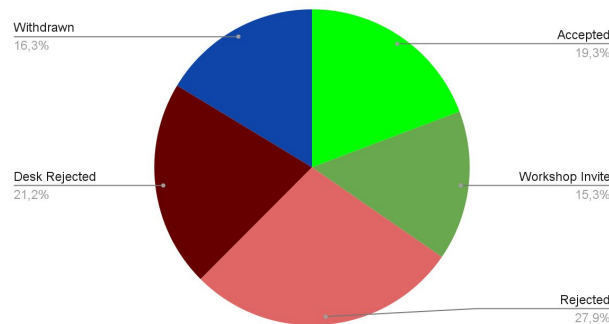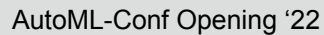**INRIA, University of Paris-Saclay**

Goals

1. High-quality papers
   ○ The conference scope is more niche,
     but the quality should be at least on the level of ICML, NeurIPS or ICLR
2. High-quality reviews
   ○ Reviewers are likely much more familiar with AutoML
     than the average reviewer for ICML, NeurIPS or ICLR
   ○ Each paper received 4.5 reviews on average (at least 3)
3. Embrace Open-Source
   ○ Modern science is strong because of the chance of collaborations and building
     upon others' work; open-source is mandatory
4. Ensure Reproducibility
   ○ Reproducibility crisis is again and again a major problem; not for AutoML-Conf!
   ○ Explicit reproducibility reviewers

AutoML-Conf in Numbers

Acceptance Distribution

- Main Track
  - 104 submissions
    - 22 desk-rejected
    - 17 papers withdrawn by the authors
  - 20 papers accepted for main track
    - 19,2 % acceptance rate wrt all submissions
    - (32,8% acceptance rate wrt submissions after desk-rejects and withdrawn)
- Workshop Track
  - 28 submissions
  - 20 papers accepted
  - 71 % acceptance rate
  - an additional 16 papers were invited from the main track to workshop track
- Journal Track
  - All 7 (previously reviewed) submissions were accepted
  - No additional reviewing!

International Coverage

Open Research Knowledge Graph (ORKG)

Venue: https://orkg.org/venue/R197419

Comparison: https://orkg.org/comparison/R199173/

CPU hours / GPU hours / CO_2 Footprint

CPU Hours	GPU Hours	CO2 Footprint
0.3	0	N/A
1,2	0	N/A
67	0	2.46
0	48	5.18
4	270	24
939	72	72.3
1,8	2	167
500	12	N/A
900	900	126
11,766.703	4,792.967	159.6
0	960	204.96
3,349	1,08	381

Insights & Open Questions:
- AutoML research can (still) be crazy expensive
  - surrogate benchmark libraries hopefully will help here
  - How does this compare to other conferences?
- No correlation between CPU/GPU hours and CO_2 footprint
- Only few authors report this so far
- **We need better tooling for this!**

Best Paper Award

AutoML-Conf 2022

BEST PAPER AWARD

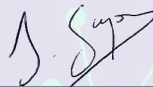## Automatic Termination for Hyperparameter Optimization

Anastasia Makarova, Huibin Shen, Valerio Perrone, Aaron Klein,
Jean Baptiste Faddoul, Andreas Krause, Matthias Seeger & Cedric Archambeau

Frank Hutter
General Chair

Marius Lindauer
PC-Chair

Isabelle Guyon
PC-Chair

Mihaela van der Schaar
PC-Chair

Tutorials

- Goal: *easy-to-follow overviews* on *recent trends*, *fast-moving topics*, hands-on sessions or future challenges related to AutoML

- Submissions were very competitive
  - Sadly we could only squeeze in 4 tutorials (+1 virtual)

- Semi-plenary
  - 2 sessions of 2 tutorials each
  - Hudson 110 and Glass Pavilion in parallel
  - Live-streamed in 2 Zoom breakout rooms (recorded)

- 5th tutorial will be virtual-only
  - Will run in Zoom before the virtual poster session (1 Aug)

Off-Campus Events

Wifi: JHGuestNet (no password) or Eduroam

<u>Tuesday Lunch on your own:</u> see website for suggestions

<u>Tuesday Dinner on a Yacht</u>, **We meet at 6:45pm, on time**

<u>Wednesday Dinner on your own:</u> see website for suggestions

<u>Wednesday Bar:</u> The Chasseur, 8:30pm

Questions? Contact Raman Arora or Colin White (colin@abacus.ai, +1-847-828-3885)
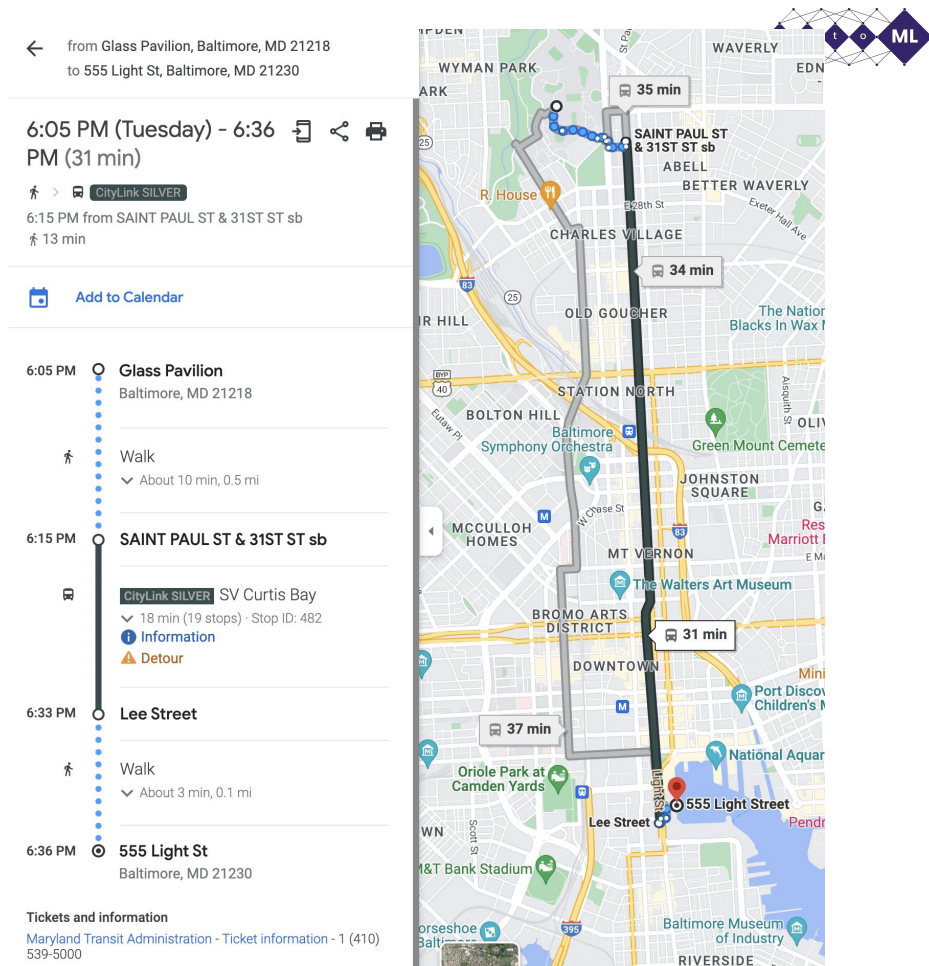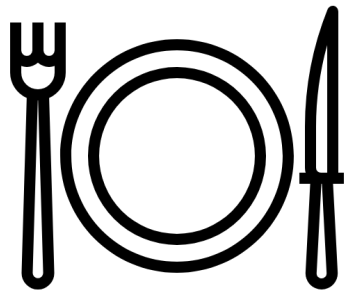
Tuesday Yacht

555 Light St

Baltimore, MD 21202

Arrive by 6:45pm, or it will leave without you!

- Bus ($2 exact)
- Uber / Lyft

Social Events I: Roundtable Lunch

<u>Where?</u> Glass Pavilion

<u>What?</u> Enjoy your lunch while meeting people working in your domain
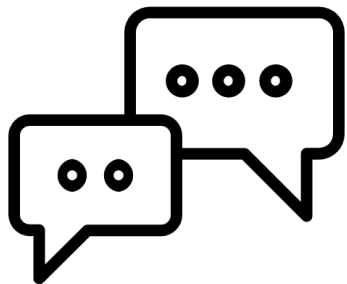
<u>When?</u> Monday, 12:30-14:30 and Wednesday 12:00-14:00

<u>Topics</u>

- Benchmarking
- Evolutionary Methods
- Reinforcement Learning
- Zero cost proxies for NAS
- Hyperparameter Optimization

- Open source
- Bayesian optimization
- Large (Language) Models
- Societal Impact of AutoML
- Meta-Learning

See also website!

Social Events II: Research Speed Dating

<u>When?</u> Today, 6:30pm - 7:30pm

<u>Where?</u> Glass pavilion / patio

<u>What?</u>
- Get to know the AutoML community & extend your network
- Get to know other attendees of the conference that you might not otherwise meet

Join the AutoML community on Slack

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Silver sponsors

Bronze sponsors