The Marvelous Retirement Revels of the Whimsical Mudge
(Trev's Retirement Symposium)

<u>Location</u>
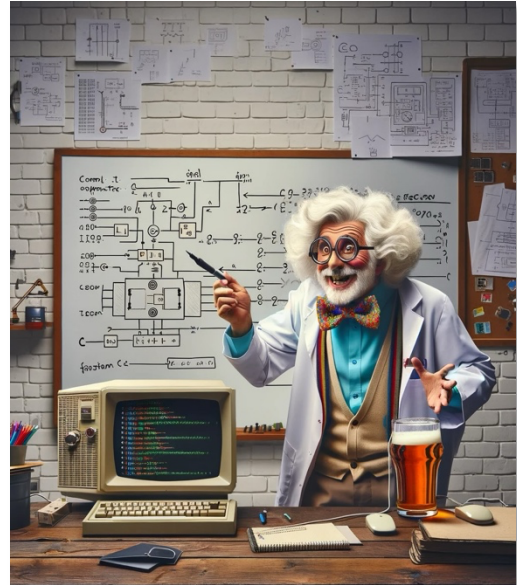Symposium: **Amphitheater, Rackham**
Dinner: **Hussey Room, Michigan League**
(see map on the last page)

<u>Agenda</u>

10:00 **Register, find the room, coffee, etc.**

10:30 **Welcome** — Kris Flautner, Ron Dreslinski,
and Trev Mudge

11:00 <u>**Invited Talks**</u>—approx. 35 minutes each, followed by Q&A

- The Future of automated and AI-assisted research — Dan Atkins
  Emeritus W.K. Kellogg, Professor of Information and Professor of EECS

- Reflections on EDA, Analog and AI — Rob Rutenbar
  Senior Vice Chancellor for Research at the University of Pittsburgh

- Translating Research Innovation to Commercial Impact — Kunle Olukotun
  Cadence Design Professor of EE and CS at Stanford University

1:00p **Lunch break**

1:30p <u>**Invited Talks**</u>—approx. 35 minutes each, followed by Q&A
- Lessons from an Industry Research Lab: Taking Innovation from the Lab to Market — Rich Uhlig
  Intel Senior Fellow and Corporate VP, Director of Intel Labs

- Random Thoughts from an Aging Professor in his dotage — Yale Patt
  Professor of Electrical & Computer Engineering at The University of Texas at Austin, and the Ernest Cockrell, Jr. Centennial Chair in Engineering, and University Distinguished Teaching Professor

- Verifying the Safety of a Simple (Trivial?) Firewall Protocol: AI vs. Human Intelligence — Karem Sakallah
  Professor of Computer Science and Engineering at the University of Michigan

3:30p **Break**

4:00p **<u>Panel on the future and the past</u>** – <u>Chair: Jason Mars</u>
Panelists:

Murali Annavaram, Lloyd F. Hunt Chair of Electrical Power Engineering and Professor of Electrical and Computing Engineering and Computer Science at the University of Southern California

Wen-mei Hwu, Senior Distinguished Research Scientist at NVIDIA Research and Emeritus Professor at the University of Illinois at Urbana-Champaign

James E. Smith, Professor Emeritus in the Department of Electrical and Computer Engineering at the University of Wisconsin-Madison

Thomas Wenisch, Director of Engineering, Google

**One theme we'd like to explore on the panel that is close to Jason's heart is:
"AI is Dead; Long Live AI!" – Now that Architecture and Systems are the Central Areas of Innovation for Progress, What Do We Do?**
Very recently, the world's attention was on AI and ML research to solve grand challenges in technology. Now that significant strides in that realm have reset the course of innovation, the next major blockers of progress are architecture and system designs to make Generative AI fast, inexpensive, trustworthy, and secure. How do we meet these challenges? Will we be able to realize designs allowing anyone to run GenAI models on their laptops or mobile devices or lock them into AI provider silos? Will users be able to train them? Or will these models forever be locked up in the world's largest (and richest) companies? What ideas will return, and which new ones might emerge?

Members of the audience are encouraged to voice their opinions; it is planned to be a vigorous, free exchange of ideas!

5:15p **<u>Open Mic Roast</u>** – <u>Kris Flautner and Ron Dreslinski Chair</u>

Bring your stories, pictures, and videos, and step up to the mic to embarrass Trev! Feel free to nitpick his papers!

<u>Reconvene at the Michigan League</u>
6:00   Open Bar at Michigan League
6:30   Dinner at the Michigan League's Hussey Room
7:00-ish   Trev thanks
9:00-ish   Conclusion

Bios of Speakers and Organizers

Once upon a time, in the hallowed halls of the University of Michigan, there lived a wizard of wisdom named Daniel E. Atkins, Emeritus W.K. Kellogg Professor of Information and a grandmaster in the mystical arts of Electrical Engineering and Computer Science. In his first spellbinding act, our hero dabbled in the arcane arts of computer architecture, conjuring high-speed arithmetic methods so swift they could outrun a cheetah on a caffeine rush. He also played with experimental contraptions for computer-assisted tomography, which is a fancy way of saying he made computers take pictures of your insides without saying 'cheese.' Then, like a chameleon on a disco dance floor, he switched gears. In his second great escapade, he ventured into the realm of cyber-enabled distributed knowledge communities (try saying that three times fast with a mouthful of marshmallows). This involved collaboratories and digital libraries, which are like regular libraries, but you don't get shushed by a librarian for laughing too loud. Our valiant Professor Atkins led the charge from clunky, room-sized computers to the swanky world of distributed computing at Michigan in the early 80s. Picture him, cape billowing, as he heroically pushed computers from the dark ages into the bright, shiny world of modern technology. As if that wasn't enough, he's been a Dean of Engineering, a Founding Dean of the School of Information, an Associate VP for Research, and even the inaugural director of the Office of Cyberinfrastructure at the National Science Foundation. He's chaired so many boards and committees that he probably has a chair with his name on it in every meeting room in the academic realm. In his latest quest, he's been leading a gallant expedition for the National Academies, delving into the future of AI and automated research, which is a bit like predicting the weather in England (good luck with that!). And, for his grand finale, he's been showered with honors, including a seat at the round table of the National Academy of Engineering and a shiny badge from the American Association for the Advancement of Science. All in all, a most remarkable chap, wouldn't you say?

Introducing Rob A. Rutenbar, the swashbuckling Senior Vice Chancellor for Research at the University of Pittsburgh, juggling the fiery torches of research and innovation. Also a Distinguished Professor, he's a veritable wizard in the realms of computer science and electrical engineering. Once the head honcho of Computer Science at the University of Illinois, Rob's academic adventures began with a Ph.D. from the University of Michigan. He then spent a quarter-century at Carnegie Mellon, possibly conjuring tech magic from the Jatras Chair in Engineering. A true Merlin of the tech world, his research spells bind analog circuits and AI into enchanted concoctions. He's launched two startups - Neolinear and Voci Technologies - like releasing dragons into the wild, both later captured by industry giants. Rob's trophy cabinet is brimming with accolades like the Phil Kaufman Award and the ACM SIGDA Pioneering Achievement Award, proving he's as much a knight in the academic realm as a sage. A

Fellow in every club worth joining (IEEE, ACM, AAAS, you name it), his fame stretches from scholarly scrolls to the Economist. In short, Rob A. Rutenbar is a combination of wizard, knight, and scientific sage, gallivanting through the realms of academia and innovation, making the world a smarter place one circuit at a time.


Sir Kunle Olukotun, the techno-wizard of Stanford, led a gallant charge in the realm of multicore processor design. Picture him atop the Stanford Hydra, a chip beast of many cores, taming it with his sheer brainpower! Sir Kunle, not one to rest on his laurels, conjured Afara Websystems from the ether, crafting the Niagara, a processor so mighty yet so meek in power thirst, it caught the eye of Sun Microsystems' dragons. This marvel now fuels Oracle's SPARC servers with its mythical might. But wait, there's more! Co-founding SambaNova Systems, Sir Kunle dove headfirst into the arcane arts of Machine Learning and AI, wielding his techno-sorcery as their Chief Technologist. In the hallowed halls of Stanford, Sir Kunle lords over the Pervasive Parallel Lab and dabbles in the dark arts of usable machine learning at the DAWN Lab. Lauded by the high councils of engineering and computing, he's an ACM and IEEE Fellow, a wizard among mortals, bedecked with the Eckert-Mauchly Award and the Harry H. Goode Memorial Award. Thus, the legend of Kunle Olukotun, the chip-charming, AI-arming, award-garnering techno-knight, marches on!

Ah, gather 'round for the tale of Rich Uhlig, Intel's very own wizard of the silicon realm, a Senior Fellow by day and a Corporate VP by... also day. Rich is the grand conductor of Intel Labs, a magical place where ideas like quantum computing and neuromorphic brainwaves are not just figments of imagination but Tuesday projects. Back in the olden days of 1996, when dinosaurs roamed the Earth and the internet was but a wee baby, Rich sauntered into Intel. There, he waved his wand over processors and platforms, bestowing upon them the mystical powers of Intel Virtualization Technology (Intel VT), enabling them to perform the most fantastical digital gymnastics. But before he donned his Intel wizard hat, Rich was a globe-trotting academic adventurer, hopping from one European research lab to another in Germany, Greece, and France. In these ancient halls of knowledge, he dabbled in arcane simulation technology and whispered secrets to operating systems, telling them how to grow up and face the modern world. And where did he acquire his magical prowess? At the hallowed University of Michigan, where in 1995, he emerged with a Ph.D. in computer science and engineering, not just a diploma but a scroll of unfathomable knowledge. So there you have it, Rich Uhlig, Intel's own Gandalf of the tech world, master of virtualization, and a true knight in the quest for technological enlightenment!
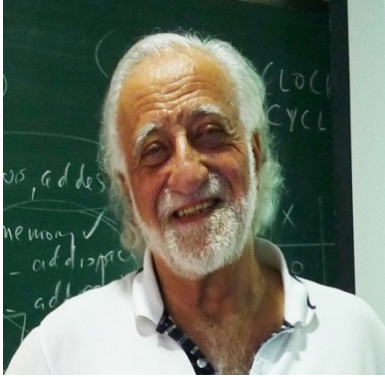
Step right up to witness the legend of Yale Patt, the grand wizard of computing at The University of Texas at Austin. Picture him, a Merlin of microchips, dazzling fresh-faced acolytes every other autumn with his legendary intro to computing class, a spell he first cast in the ancient realm of U-M. As the seasons turn, so does Patt, morphing into the grandmaster of Microarchitecture every other spring, guiding intrepid grad students, through a labyrinth as intricate as a dragon's lair. And when the university elders give the nod, he transforms yet again, leading seniors on a mystical quest through the enigmatic world of computer architecture. Flashback to Winter '98 at U-M: among his wide-eyed pupils, Ron Dreslinski and Onur Mutlu, little knowing they were in the presence of a tech sorcerer. Yale Patt, a knight errant in the land of academia, has journeyed through prestigious universities, amassing degrees and accolades like a dragon hoards gold, his den a trove of scholarly treasures. Behold, Yale Patt: computing's whimsical wizard, microarchitectural maestro, and a sage in the saga of academia!

Hear ye, hear ye! Let me introduce you to Karem Sakallah, the grand wizard of Computer Science and Engineering at the University of Michigan. Now, gather around, for his claim to fame is nothing short of magical – the creation of the GRASP Boolean Satisfiability Solver. Picture this: alongside his trusty Ph.D. apprentice, Joao Paulo Silva, he stirred the cauldron of automated reasoning, unleashing a revolution that turned the tech world topsy-turvy! Sakallah's own academic quest began at the fabled Carnegie Mellon University under the watchful eye of the sage Stephen Director. In a twist of fate, many moons later, Director followed in Sakallah's footsteps, venturing to Michigan to don the mantle of Dean of the College of Engineering. And, of course, our hero Sakallah has been adorned with the usual regalia of academic knighthood – he's a Fellow of both the IEEE and ACM, a badge of honor in the realms of research and innovation. So, there you have it – Karem Sakallah, the sorcerer of solutions, a mastermind in the mystical arts of computer science, and a legend in the hallowed halls of academia!

Ladies and gentlemen, boys and girls, step right up to the high-flying, globe-trotting, tech-wizarding world of Jason Mars! At the crossroads of science, technology, and entrepreneurial magic, Mars weaves his spell as a computer science professor at the University of Michigan. Here, he captains the Clarity Lab, a wonderland of artificial intelligence, large-scale computing, and programming language alchemy. But wait, there's more! Mars is the mastermind behind Jaseci and the Jac programming language, a technological marvel akin to pulling a rabbit out of a hat in the world of Generative AI. This spellbinding tech is not just a showpiece; it's the star of the commercial stage, dazzling companies like TrueSelph and Myca.ai. Mars, a veritable Merlin of AI, has founded multiple companies,

sprinkling his AI magic over 20 million users across diverse realms. He's not just playing with potions; he's conjuring up serious business, raising a wizard's ransom of $62 million in venture capital, and building empires valued at over $200 million. His trophy room? It's packed with accolades like Crain Business's 40 under 40, Bank Innovations' Most Innovative CEO, and the CARAH Award. Mars isn't just about the dazzle; he's a sage too, penning the bestseller "Breaking Bots: Inventing A New Voice In The AI Revolution," inspiring the next generation of techno-wizards. Before his grand entrance at the University of Michigan, Mars imparted wisdom at UCSD and rubbed shoulders with the giants of Google and Intel. His journey began with a Ph.D. in Computer Science from UVA, the first step in his epic quest to the pinnacle of AI and entrepreneurial wizardry. So there you have it: Jason Mars, a spellbinding blend of technomancer, AI alchemist, and entrepreneurial eagle, flying high in the tech skies!

And now for something completely different: the tale of Krisztián Flautner, a man who juggled clouds and tinkered with things that go beep in the night. As the grand poobah of Banzai Cloud, he bravely ventured into the wilds of "hybrid any-cloud platforms," making the Herculean task of wrangling private clouds as simple as a Monty Python skit. Before his cloud-wrangling days, Krisztian was the ringmaster at the Internet of Things Circus and a virtuoso in Research and Development at ARM, where he was utterly consumed by spawning new business rabbit holes and spreading ARM technologies like coconuts carried by migrating swallows. With a Ph.D. in computer science and engineering, plucked from the hallowed halls of the University of Michigan (a place surely as mysterious as the Castle Anthrax), he didn't just collect degrees; he hoarded them like a dragon with treasure. Krisztián, the prolific scribe, authored or co-authored over 80 publications, snatching various best-paper awards like a knight in search of the Holy Grail. Let's not forget the 2017 ISCA influential paper award for his groundbreaking research in making computers not just smart but also power-efficient (a bit like a knight who not only quests but also recycles). As the cherry on top, in 2012, he was bestowed the U-M Alumni Merit Award in Computer Science and Engineering, an accolade as coveted as the meaning of life itself. And thus, Krisztian continues, presumably searching for the next big question: How many ARM processors does it take to screw a lightbulb into a cloud?

Now, let's turn our gaze to the curious case of Ron Dreslinski, a true-blue (or should we say, maize and blue) marvel from the University of Michigan. Picture this: a chap who loved the University of Michigan so much he collected degrees like a squirrel with acorns - a bachelor's, a master's, and a Ph.D., no less! It's as if he took the phrase "Go Blue!" a bit too literally, turning it into his academic mantra. But wait, there's more! Ron is not just any old professor; he's an Associate Professor with a penchant for delving into the mystic arts of computer architecture. And, lo and behold, he's been knighted with the IEEE TCCA Young Computer Architect Award, a prize so prestigious it's like finding the Golden Snitch in a game of

Quidditch. Now, here's the kicker: Ron's research isn't just about making computers think faster; it's about making them think smarter and greener. He's a bit like a wizard in a lab coat, conjuring up power and energy-efficient computer architectures that hold hands and dance beautifully with circuits and software. Imagine a world where computers don't just chomp through electricity like a hungry dragon but sip it delicately like a dainty elf. That's the world Ron is crafting with his spells of co-design and innovation. In summary, Ron Dreslinski: a maize-and-blue-blooded academic, a green-minded computer wizard, and a seeker of the Holy Grail of energy efficiency in the enchanted realm of computer architectures.

And now, ladies and gentlemen, boys and girls, ducks and drakes, for the pièce de résistance, the crème de la crème, the man who puts the 'compute' in 'computer science'—Trevor Mudge! He's not just any chap; he's a wizard with an MS and PhD in Computer Science, straight from the hallowed halls of the University of Illinois, Urbana (where they apparently give out degrees like hotcakes). But wait, there's more! He's the Bredt Family's very own Professor Emeritus of Engineering (fancy, eh?) and also a Professor Emeritus of Electrical Engineering and Computer Science at the University of Michigan, Ann Arbor. Rumor has it that he can turn a toaster into a supercomputer and write code that makes coffee. He's written more papers than a stationary shop, covering everything from computer architecture to the arcane arts of VLSI design and the mystical world of computer vision. He's also chaired 58 theses; that's right, fifty-eight! That's more than the number of times a Monty Python sketch has made someone snort tea out of their nose. In 2014, he bagged the ACM/IEEE CS Eckert-Mauchly Award (with slides, no less) and the University of Illinois Distinguished Alumni Award. It's said that when he received these awards, computers worldwide beeped in joy. He's a Life Fellow of the IEEE, a Fellow of the ACM, and a member of both the IET and the British Computer Society. We're not sure what secret handshakes are involved, but we're impressed nonetheless. But that's not all! He's in the Hall of Fame for not one, not two, but three conferences: ISCA, Micro, and ASPLOS. We suspect it's because of his ability to program in binary while blindfolded. He's also a fan of the sage wisdom of Isaac Asimov, who once said something about anti-intellectualism and democracy and something else about the future not being like the past, paraphrasing another wise chap named David Hume. Despite all his knowledge and awards, Trevor loves history and innovation, and he's looking into the future with the optimism of a freshly retired man. Rumor has it that he's now working on a time machine or perhaps just enjoying a well-deserved cup of tea. Either way, Trevor Mudge, we salute you!

DIRECTIONS TO RACKHAM

The Rackham building address is 915 E Washington St, Ann Arbor, MI 48109
The map below shows Rackham in a red square and the Michigan League, where we'll have dinner, also in a red square.

The Rackham Amphitheatre is located on the fourth floor of the Rackham Building, so when you come into the building, please take the elevator or stairs. The main auditorium is on the ground floor, but we're NOT there—the Amphitheatre is on the 4th floor (ground = 1).
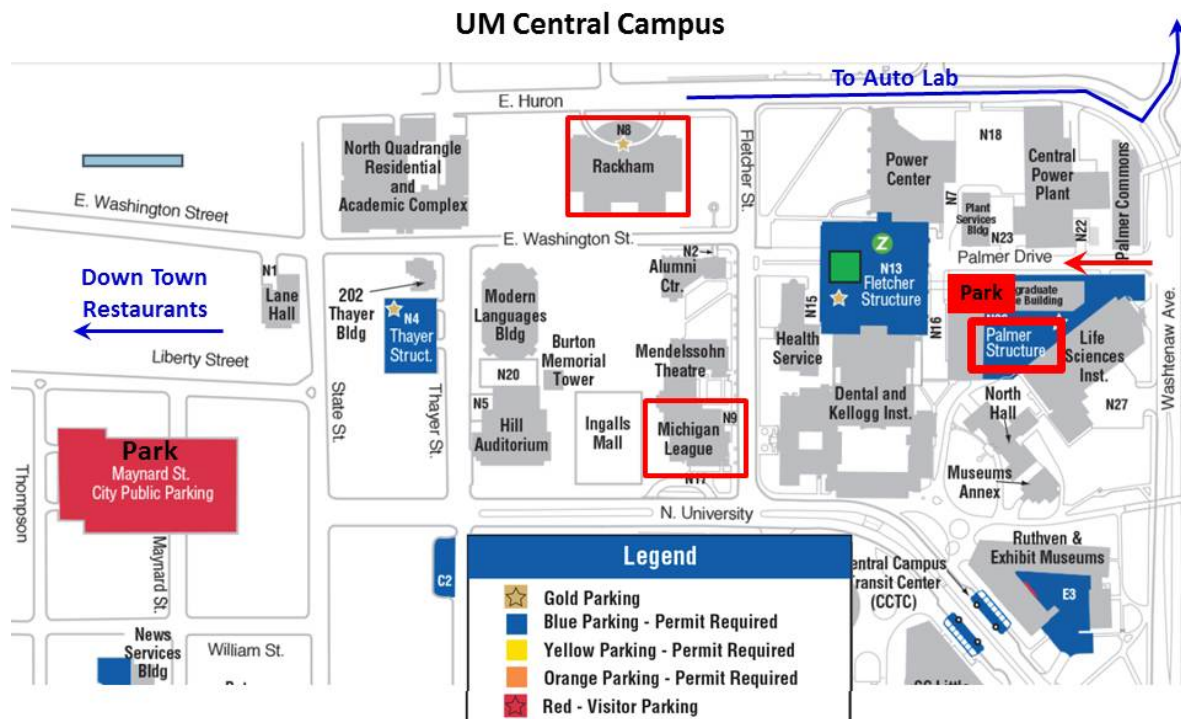
PARKING
Parking sucks. I suggest walking for those of you in nearby hotels or Uber/taxi/Lyft (particularly if you want to take advantage of the open bar). You may want to try the street where there are metered spots. If you examine the map below, you can see a red block that is visitor parking. The walking distance between that and Rackham is about 50 yds. Please call us if you get stuck:

Trev: +1 734 323 4613
Kris: +1 734 773 7658
Ron: +1 971 221 6554

UM Central Campus

Park at Maynard St. or Palmer Structure (visitor spots only)
Gold, Blue, Yellow Orange parking REQUIRE permit Fri & Sat on Central Campus