



Microsoft Research Outstanding Collaborator Awards

2016

A graphic consisting of three concentric circles in shades of blue, with a white circle in the center. The text "Microsoft Research 25 Years" is centered within the white circle.

Microsoft
Research
25
Years

Preface

In the 25 years since its founding in 1991, Microsoft Research has grown to be a worldwide symbol of excellence in computer science. Our over 1,000 scientists, engineers, and designers produce technologies that change the lives of people every day through their innovative software, systems, and designs. We are proud of our accomplishments, but in reality they are all founded on a model of open collaboration with academia. The Microsoft Research Outstanding Collaborator Awards 2016 highlight and celebrate some of the amazing academics who have worked with us over the years.

We salute all our academic collaborators over the years and thank them warmly for their contributions to making Microsoft Research great. Academics from all over the world visit us year after year, writing joint papers, often winning best paper and test of time awards. We have written code and shipped products together. Their students have come to our labs as interns, many later being hired into the company. Many have spent their sabbaticals with us. Our senior academic collaborators have served on our Technical Advisory Boards (TAB), giving us wise advice and good guidance. Many have been our advocates in forums and bodies across the world.

The sheer scale of Microsoft's involvement with academia bears mention. In our 25 years, we have published over 23,000 joint papers with over 22,000 authors from over 1,500 institutions outside of Microsoft. From 177 joint papers in 1992, the total has grown to over 6,300 published per year.

Beyond numbers, from collaboration comes real impact. From stream processing tools to the changing role of the internet, from HIV vaccine design to cryptography protocol verification, and from quantum computing to complex molecular networks, our collaborations touch every aspect of computer science, and its wider application for society.

In this booklet, we narrate the stories of 32 outstanding collaborators. Each was nominated by a researcher and endorsed by others in the labs. Each has gone beyond the call of duty in a normal research collaboration. The nominations reflect the range of areas of research that we cover, and, in a very personal way the different interaction styles that flourish between those in academia and the researchers in the labs worldwide every day. In the few collaborations highlighted here, we mention over 30 Microsoft projects, many of which went on to be included in major Microsoft products like Visual Studio, Microsoft Word and Azure Streaming Analytics. Each story represents a journey of discovery, where success was not guaranteed, but where ultimately real impact could be measured and valued.

It is fitting therefore that we take time to acknowledge and celebrate this wonderful ecosystem, and to congratulate these very special awardees. We would also like to thank everyone who submitted nominations and especially the panel of senior members of Microsoft Research who had the difficult task of selecting the finalists.

Peter Lee and Jeannette M. Wing

Corporate Vice Presidents,
Microsoft Research
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Susan Athey

Stanford University

Susan Athey has been collaborating with Microsoft for over 10 years. She founded the empirical economics program at Microsoft Research (MSR) New England while a professor at Harvard University. In that role, she increased the visibility of MSR in top academic departments, and led collaborations with the top minds in game theory and applied economics. She conducted research with principal researcher Markus Mobius on how the Internet has changed our consumption of news. In collaboration with the Bing team, Susan invented new techniques for estimating demand in search auctions. Her leadership and mentorship have been pivotal in the growth of the economics group at Microsoft, as well as more broadly in the tech industry.



Karthikeyan Bhargavan

INRIA

Karthikeyan (Karthik) Bhargavan leads the INRIA Joint Research Center work on cryptographically-verified protocol implementations. During 8 years of intense research, he made essential contributions to many joint projects: miTLS, F*, JavaScript security, and (from this year) the Everest project for a high performance, standards-compliant, formally verified, drop-in replacement of the full HTTPS ecosystem. As part of the collaboration, Microsoft hired two researchers and many interns from his Prosecco (Programming Securely with Cryptography) team at INRIA.

Karthik made fundamental advances in cryptographic protocol verification and language-based security, and also had a major impact on Internet security, uncovering and fixing practical vulnerabilities in widely-deployed standards and implementations (such as Triple-handshake, FREAK, Logjam, SLOTH for TLS); and improving the design of future standards. He recently received the Levchin prize and numerous best-paper awards for these contributions to real-world cryptography.



Andreas Blass

University of Michigan

Andreas Blass has been collaborating with Microsoft Research, specifically with researchers in RiSE and QuArC, for the last 18 years. He coauthored 44 scientific papers with Microsoft researchers. Andreas' contribution to the theory of abstract state machines was indispensable. That theory was used to build the Spec Explorer tool, the tool that helped Microsoft meet demands of the European Union regulators. When Microsoft was developing a more efficient approach to remote differential compression, Andreas contributed to the mathematical analysis of the new approach that eventually was incorporated into many Microsoft products. Andreas also worked with RiSE on access control and various security issues. Other collaborations included theory of program termination, finite model theory, and computational complexity. Most recently, Andreas has worked with QuArC researchers on quantum computing and its underlying theory.



Roberto Cipolla

University of Cambridge

Roberto Cipolla has been an inspirational leader and collaborator in computer vision. He has cosupervised PhD students with Microsoft Research (MSR) Cambridge since the lab's founding. His numerous alumni include Jamie Shotton, now head of the Machine Intelligence and Perception group at MSR Cambridge, and Matthew Johnson, who leads the MSR Cambridge Agile Projects Team. Shotton's PhD work with Cipolla, and the work of Andrew Blake, working with Johnson, introduced some of the techniques that were later key to the body tracking algorithms in Kinect for Xbox 360. Another important influence on Kinect came from two other students of Roberto's, Nanthan Thayananthan and Ram Navaratnam. Roberto encourages his students to address hard theoretical problems, but always with an eye to real-world application and demonstrations.



Peter Druschel

**Max Planck Institute for
Software Systems**

Peter Druschel has made numerous contributions to Microsoft Research (MSR) over the years. Starting in 2000, he was a visiting researcher in the Cambridge lab and started a peer-to-peer systems collaboration that was active for many years. This generated a long stream of seminal papers. One of the first papers produced by the collaboration was about Pastry, a distributed hash table. This influential paper is still one of the most highly cited papers written by MSR. Peter remains actively supportive of MSR Cambridge, and continues today to contribute to the success of MSR by serving as an external Technical Advisory Board member.



John Hopcroft

Cornell University

John Hopcroft, a long-standing member of the Microsoft Research Asia (MSRA) Technical Advisory Board, has provided invaluable recommendations. John has been one of the strongest advocates for MSR among talented students in China. Since 2011, when John was chief professor of the Chair Professor Group at Zhiyuan College, Shanghai Jiao Tong University, MSRA has hired over half of his top computer science undergraduates as MSRA interns. He has been instrumental in strengthening the collaboration between MSR and key academic partners. John has also been a close collaborator of Christian Borgs and Jennifer Chayes for over a decade, first at MSR Redmond and then at MSR New England. Together they have developed influential network algorithms for decreasing web spam and for identifying communities in massive networks.



Nigel Horspool

University of Victoria

Starting in 2010, Nigel Horspool played a key role in ensuring that Microsoft Research's mobile and cross language projects landed on time and with maximum impact in the academic world. For the TryF# team led by Don Syme, Nigel wrote the tutorials that were launched with the browser-based experience. TryF# was instrumental in raising the usage of F# into the top 20 languages in 2014. Working closely with the TouchDevelop team led by Nikolai Tillmann, he then captured the essence of a very fast developing language in book form, gaining the top spot on Amazon on mobile phones in 2013. The ongoing project with the same team now led by Judith Bishop is Code Hunt, a serious programming game based on IntelliTest in Visual Studio, for which Nigel wrote the Java translator, thus increasing usage among students five-fold to 500K today. As puzzle master for Code Hunt, Nigel still creates challenging contests for Microsoft and mentors young Code Hunt puzzle designers from around the world.



Seung-won Hwang

Yonsei University

Seung-won Hwang has closely collaborated with Microsoft Research (MSR) as an intern and visiting researcher hosted by DMX, WSM, XCG, and ISRC groups multiple times. Her work with MSR includes a tech transfer in the area of web search and intelligence mining. The outcome of these joint efforts were published in more than 50 papers at top-tier conferences and journals, out of which 21 papers were coauthored with 12 different Microsoft researchers. She has sent five PhD students to Microsoft Research in Beijing and Redmond, two of whom have won Microsoft Research (MSRA) Fellowship awards. She is the first professor in Korea to adopt Windows in an operating system course and Windows Azure in a large data management course. After the visit of corporate vice president Jeannette Wing, Seung-won became an advocate of computational thinking at Yonsei University. Seung-won continues to be one of MSRA's closest collaborators.



Misha Kazhdan

The Johns Hopkins University

Misha Kazhdan has collaborated with Microsoft Research (MSR) for over a decade, contributing to a sequence of impactful papers and the community. In 2005, he worked with Hugues Hoppe on "Poisson Surface Reconstruction," efficiently constructing detailed geometry from noisy points. This is still the most cited paper at the Symposium on Geometry Processing (SGP). His open-source code has been widely adopted (MeshLab, CGAL, VTK), earning him the inaugural SGP Software Award in 2011. Misha introduced a streaming solution for gradient-domain image processing (SIGGRAPH 2008) and extended the technique to spherical domains (SIGGRAPH Asia 2009), enabling seamless stitching of the impressive terapixel sky featured in the American Astronomical Society WorldWide Telescope. "Screened Poisson Surface Reconstruction," coauthored with Hugues and published in ACM Transactions on Graphics in 2013, further improves the technique. Featured at SIGGRAPH 2016, he contributed to the automatic creation of motion graphs within the scanned mesh.



Ed Lazowska

University of Washington

Edward (Ed) Lazowska is one of the top leaders in the computer science research community. He has collaborated with Microsoft Research (MSR) at many levels. In particular, as a member and chair of the Technical Advisory Board (TAB) for MSR Redmond for the past 10 years, he has provided invaluable advice on research directions, helping MSR assess the impact of our research projects, and on the development of collaborative initiatives. Ed has vast experience working on top government advisory committees, including cochairing the President's Information Technology Advisory Committee and chairing the NSF Computing and Information Science and Engineering Advisory Committee. He has also been a key leader in academic organizations, having chaired the Computing Research Association and been a founding chair of the Computing Community Consortium. That experience, in addition to being a top researcher and educator, has been invaluable in his participation in the MSR Redmond TAB.



David Maier

Portland State University

David Maier has been a critical collaborator, a source of inspiration, and an advisor on the Microsoft Research (MSR) Streams project, from its inception a decade ago until now. He was a visiting researcher multiple times and has published papers in the area of stream processing and big data analytics. David's insights and experience on stream processing models helped shape streams research at MSR. For instance, David's work with MSR on recursive stream processing and complex pattern detection has had significant research impact. Some of David's research has shipped commercially as part of the Microsoft product StreamInsight as well. Several of David's students have joined Microsoft as full-time employees. David's research, advice, and support contributed to the eventual creation of Trill, which had immense impact across a range of Microsoft products and services that require stream processing, including Azure Stream Analytics and Bing Ads.



Helen Mei-Ling Meng

The Chinese University of Hong Kong

Helen Meng is the codirector and cofounder of the Chinese University of Hong Kong—Microsoft Joint Laboratory of Human-Centric Computing and Interface Technologies. Thanks to her strong leadership and open mindset, the Joint Laboratory has grown from its initial focus on speech into a virtual collaboration platform for multiple research areas including speech, systems, vision and graphics, and multimedia. Since its launch in 2005, the Joint Lab has produced over 100 publications on a variety of research projects with Microsoft Research Asia (MSRA), and has continued to send high-quality interns to MSRA over the years. Helen has been a collaborator with MSRA for more than 10 years. She is an expert on speech recognition and has recently been conducting a healthcare research project that uses and enhances the Microsoft band. In addition, Helen generously offers her support and testimony to Microsoft products and business.



Todd Millstein

University of California,
Los Angeles

Todd Millstein's association with Microsoft Research (MSR) has involved broad and deep collaborations, spread over a decade, on network verification, memory models, and predicate abstractions. The original collaboration began when Todd interned at MSR while a graduate student. He proceeded to work on what became the highly successful SLAM project on static driver verification. Since joining UCLA as faculty almost a decade ago, he has continued his collaborations with several networking and programming languages researchers at MSR. Focused on enforcing strong concurrency semantics and on verifying network protocol and configurations, this has yielded over a dozen publications in top-tier venues, including multiple award-winning papers. His work has been used by Microsoft's engineering teams to find concurrency bugs and network configuration errors.



Peter Müller

ETH Zurich

Peter Müller has been a prolific collaborator and visiting researcher with Microsoft Research (MSR) since 2003. Peter was a major contributor to the specification methodology of Spec#, an extension of C# with contracts. This methodology was also the starting point for the verifier VCC for C programs, used by others to verify the memory safety of a substantial portion of Microsoft Hyper-V. Peter codesigned the specification methodology for the concurrent language and verifier Chalice. The development has since transferred from MSR to ETH Zurich. Peter and his group also integrated static analysis in the mobile development environment Touch Develop. More recently, Peter has collaborated on the combination of testing and verification in the contexts of the Dafny language and of .NET Code Contracts. In addition to tools, Peter's collaborations have resulted in two dozen papers at conferences like ESOP, VMCAI, CAV, and TACAS, including nine papers coauthored with his students.



Shwetak Patel

University of Washington

Shwetak Patel is well known for his work on novel interaction techniques as well as low-power sensing for sustainability and healthcare applications. He has received many honors, including a MacArthur “Genius” Fellowship, Microsoft Research (MSR) Faculty Fellowship, Sloan Fellowship, MITTR-35 Award, World Economic Forum Young Global Scientist Award, National Science Foundation Career Award, and Presidential Early Career Award for Scientists and Engineers. He has been a prolific MSR collaborator since arriving at the University of Washington, which has resulted in a sizable portfolio of projects, publications, and products. Shwetak has sent more than 10 of his UbiComp Lab students to MSR as interns, and of these, 4 have received MSR PhD Fellowships. A fair number of his graduates have ended up in full-time roles at Microsoft. Shwetak also plays a key leadership role in the UW-Tsinghua-Microsoft Global Innovation Exchange, which will soon open a campus in Bellevue.



David A. Patterson

University of California,
Berkeley

David (Dave) Patterson has been involved with Microsoft Research (MSR) for decades. He served on the Technical Advisory Board during the lab's formative days. Dave's guidance was crucial for selecting the correct projects and proper tone to enable us to develop into a world-class lab, to succeed internally and externally, and to recruit the great scientists we needed to survive. He also contributed by sending MSR students, such as Peter Bodik and Sarah Bird, as researchers and interns. Recently he collaborated with MSR in developing SNAP, an open-source system for gene sequencing. SNAP was used by University of California, San Francisco as the core to their SURPI sequencing-based infection diagnosis system, which was covered in the New York Times for having helped save the life of a teenager with a difficult-to-diagnose infection. He also led a collaboration between MSR, Berkeley and Oregon Health and Science University on combination therapies to treat acute myeloid leukemia.



Nir Piterman

University of Leicester

Nir Piterman is a well-known world-class expert on temporal logic, automata theory, model-checking, and program synthesis. Nir has been collaborating extensively with Microsoft Research (MSR) since 2007, which has led to 28 papers coauthored with numerous MSR researchers. Since 2009, Nir has been working with Microsoft researcher Jasmin Fisher on the BioModelAnalyzer platform, where he has contributed to every stage—from inception, through tailored verification algorithms, to software design and human computer interaction. During the years of 2008 and 2009, Nir also worked with Patrice Godefroid on model-checking and program synthesis problems. In the summer of 2009, Nir was a visiting researcher in Patrice's group in Redmond, and they worked on automatic test generation to find security vulnerabilities in complex software applications with highly-structured inputs specified in XML dialects, such as Microsoft Word, which supports many complex input formats.



Gordon Plotkin

University of Edinburgh

Gordon Plotkin is a living legend in Computer Science. His collaborations with Microsoft Research (MSR) demonstrate the intellectual curiosity, drive and attention to quality it takes to live up to his standing. He is furthermore tremendously pleasant to work with; in the creative development phase and in polishing results to the stage where they can stand the test of time and scrutiny.

Gordon has been a long time collaborator with MSR. His collaborations with MSR include at least 7 papers at venues such as POPL, FoSSaCS, MFCS. One of his more recent collaborations, that he embraced with vigor, centered on symmetry detection and reduction in data-center. Gordon is now actively collaborating on the Everest project to design and implement a high performance, standards-compliant, formally verified, drop-in replacement of the full HTTPS ecosystem.



Erhard Rahm

University of Leipzig

Erhard Rahm collaborated with Phil Bernstein in 2000 to define the new problem area of schema matching. Their survey, published in 2001 in *The VLDB Journal*, categorized types of matching algorithms and invented some new ones. This stimulated a long line of research, resulting in over 3,700 citations. The VLDB 2001 conference paper based on that research won the VLDB Ten Year Award in 2011. The collaboration continued for the next five years, focusing on data integration problems that can be solved using declarative mappings, especially schema evolution, for which Erhard and Phil published an annotated bibliography. Erhard's PhD student Sergey Melnik was part of this effort, and later joined MSR for several years. During that time, Melnik and Bernstein developed a schema matching algorithm, published at VLDB 2006, which became part of Microsoft BizTalk's schema mapping system.



Raj Reddy

Carnegie Mellon University

Raj Reddy is the Moza Bint Nasser University Professor of Computer Science and Robotics at Carnegie Mellon University. He has been at Carnegie Mellon for over 40 years. As founding director of the Robotics Institute and, in the 1990s, as dean of the School of Computer Science. He is a recipient of the ACM Turing Award and the Vannevar Bush Award—the highest award of the National Science Foundation in the United States—for “lifetime contributions to science and long-standing statesmanship in science and on behalf of the nation.” Raj has also been given international awards from France, India, and Japan. He served as the cochair of President Clinton’s IT Advisory Council (PITAC) from 1999 to 2000. Raj was a founding member of the Microsoft Research (MSR) Technical Advisory Board. His advice and input were tremendously valuable in the early days of the organization, and he has continued over the years to provide valuable insights and support to MSR leadership.



Tom Rodden

University of Nottingham

Tom Rodden has collaborated with Microsoft Research (MSR) Cambridge for more than a decade, helping to establish human-computer interaction as a key discipline within the lab. He collaborated on many projects and helped run influential workshops, most recently one examining synergies between human and artificial intelligence. As director of the Equator Research Centre and codirector of the Mixed Reality Lab at the University of Nottingham, Tom has been a driving force for HCI in Britain and has always looked for opportunities for MSR to participate. He also sent many students to MSR, some of whom were hired as full-time researchers. Tom is currently a Technical Advisory Board member at MSR Cambridge and is deputy CEO of the Engineering and Physical Sciences Research Council in the UK.



Yvonne Rogers

University College London

Yvonne Rogers is a world-leading academic in human-computer interaction. Since 2004, she has been a long-time collaborator with Microsoft Research (MSR) Cambridge. During this time, MSR has greatly benefited from her positions at, and connections to, University College London, the Open University, the University of Sussex, Indiana University, and the University of Cape Town. This includes hiring many of Yvonne's students, both as interns and into researcher positions. Yvonne was a Technical Advisory Board member to MSR Cambridge for 6 years, and has collaborated on many projects. She also helped run influential workshops such as "Being Human: HCI in the Year 2020" which led to a book of the same name, over 10,000 copies of which have been distributed and used in human-computer interaction courses worldwide.



Mooly Sagiv

Tel Aviv University

Mooly Sagiv, well known for his work on interprocedural program analysis, focuses on program analysis and its applications to the task of simplifying the development of reliable and efficient programs, including program verification and program synthesis. His name is synonymous with the discipline of shape analysis, thanks to his development of TVLA (the three-valued logic based analysis approach to shape analysis). This approach addresses the challenges that arise in analyzing and verifying infinite state systems consisting of an unbounded, dynamically changing universe of entities. Over the past decade, Mooly has collaborated with a number of Microsoft researchers on topics such as concurrent shape analysis, verification of concurrent programs, concurrency control synthesis, and testing, collaborations that have led to no fewer than twenty-six publications in top-tier conferences, including five PLDI papers, four ESOP papers, four CAV papers, and one POPL paper.



Georg Seelig

University of Washington

Georg Seelig has collaborated with Microsoft Research (MSR) Cambridge for the past 5 years on programming information processing at the nanoscale using DNA. The collaboration has resulted in a DNA-based technology for implementing the computational core of complex molecular networks (Nature Nanotechnology, 2013). As a proof of principle, the team implemented a network that realizes—at the molecular level—an algorithm used in distributed control systems for achieving consensus between multiple agents. The collaboration involved integrating software design tools developed at MSR with wet lab experiments designed and performed at the University of Washington, and led to major improvements in both software and lab experiments. The next stage of the collaboration is to implement programmable molecular devices that can be inserted into living cells for disease diagnosis and treatment.



Ion Stoica

University of California,
Berkeley

Ion Stoica is a professor in the EECS Department at University of California, Berkeley. He received his PhD from Carnegie Mellon University in 2000. Ion's research focuses on cloud computing and networked computer systems. His past work includes the Dynamic Packet State (DPS), Chord DHT, Internet Indirection Infrastructure (i3), declarative networks, replay-debugging, and multilayer tracing in distributed systems. He is an ACM Fellow and has received numerous awards, including the SIGCOMM Test of Time Award (2011), and the ACM doctoral dissertation award (2001). Since 2009, Ion and his students have had many impactful collaborations with Microsoft researchers in the areas of cloud computing and big data analytics systems. These collaborations include work on geo-distributed analytics, outlier mitigation, query optimization, and storage systems. The system that was the result of some of these collaborations runs as part of production services at scale in Microsoft clusters.



Alexander Szalay

The Johns Hopkins University

Alexander Szalay was a close collaborator of Jim Gray from 1999 to 2007. Together, they made many important contributions to the use of relational database systems for eScience in general, and astronomy in particular. Their best-known work is SkyServer, which provides public Internet access to the Sloan Digital Sky Survey (SDSS). This system stores its data in Microsoft SQL Server, which is used in innovative ways to offer the types of queries of interest to astronomers. In 2007, Alexander was the first recipient of the Jim Gray eScience Award, awarded by Microsoft Research to a researcher who has made an outstanding contribution to the field of data-intensive computing. With the award, Alexander was “recognized for his foundational contributions to interdisciplinary advances in the field of astronomy and groundbreaking work with Jim Gray.”



Andy van Dam

Brown University

Andy's collaborations with Microsoft Research (MSR) span years, projects and people. As a co-founder and the first Chairman of the Computer Science Department at Brown University, Andy has been at the forefront of graphics visualization research for decades. He has collaborated closely with MSR over the years on a range of research areas including three dimensional widgets and interactive shadows. Andy has conducted research on both the Microsoft Surface and on the Microsoft Surface Hub, and other platforms. His Touch Art Gallery, designed on the PPI and Microsoft Surface Hub, has been used by museums around the world. Andy is a long-serving member of MSR's Technical Advisory Board. Andy has also helped populate Microsoft with employees by mentoring many of his students into both internships and full time positions in both Microsoft and Microsoft Research.



Bruce D Walker

Harvard Medical School,
Massachusetts Institute of
Technology

Bruce Walker, who was already known for efforts toward the development of a T-cell vaccine for HIV in 2005, recognized that the expertise in data science from Microsoft Research (MSR) complemented his team's expertise in immunology and virology. Over the last 11 years, Bruce's collaboration with MSR has been extremely fruitful, resulting in over three dozen publications on HIV evolution and HIV vaccine design in journals such as *Nature* and *Science*. The collaborative research will continue into the future as Bruce will test MSR's HIV vaccine designs and further explore the evolution of HIV.



Stephanie Weirich

University of Pennsylvania

Stephanie Weirich is an undisputed world leader in type system research, especially in taking the output of esoteric type theory and applying it to make the lives of professional programmers better. She has done so partly through her foundational work on dependently typed languages, but also through a decade-long collaboration with Microsoft Research (MSR) to extend Haskell with more powerful static types. This collaboration has included a long series of joint papers, PhD dissertations, MSR internships, a sabbatical visit in the MSR Cambridge lab, and a hire. Her originality, technical virtuosity, outstanding communication skills, and open collaborative style have had a major impact on research at MSR, with practical outcomes (such as the Glasgow Haskell Compiler) that are used daily by thousands of programmers.



Laurie Williams

North Carolina State University

Laurie Williams has made exceptional contributions to software engineering research not only in Microsoft Research (MSR) but throughout Microsoft at unprecedented levels for over 10 years. She has collaborated and continues to work with a wealth of Microsoft researchers spanning several continents on a number of research projects, ranging from continuous deployment, software security, agile development, software engineering, software analytics, and many others. She has helped Microsoft product teams including Windows Client and Server, DevDiv, Bing, Skype, and Yammer. Her collaboration with MSR has led to many high-profile publications as well as book projects, and she has helped organize joint research and product group seminars on branching. Laurie's collaboration has involved many students and interns who, like her, have continued to make a positive impact at Microsoft and the software engineering research community. Laurie has been an inspiration for empirical software engineering at Microsoft.



Tao Xie

**University of Illinois at
Urbana-Champaign**

Tao Xie has collaborated with Microsoft Research (MSR) over the last decade. As a visiting researcher in the Research in Software Engineering (RiSE) group, he personally contributed a core search algorithm for the automated test generation feature IntelliTest, which shipped as part of Visual Studio 2015 Enterprise Edition. Even more influential were his frequent visits to Microsoft Research in Redmond and China, which spawned dozens of collaborative projects. His students prototyped many new ideas on top of platforms and tools provided by MSR, in particular on the Pex4Fun project established by Nikolai Tillmann and Peli de Halleux. Over the years, Tao also deeply engaged with Dongmei Zhang and the Software Analytics group in China. This resulted in more than 60 joint high-profile publications in areas including automated test generation, computer science education, and software analytics.



Bo ZHANG

Tsinghua University

Bo Zhang has contributed to Microsoft Research Asia (MSRA) in areas of research advancement, fostering talent and advocacy. As a founding member, Bo has been serving on Microsoft Research Asia's Technical Advisory Board since 1998. For nearly 20 years, Bo has provided significant suggestions and priceless insights on helping the lab set up impactful research directions and develop new technologies. His influential lab at Tsinghua University has also been deeply collaborative with MSRA in the field of artificial intelligence. Bo has sent many students to MSRA, some of whom have become well-known leading researchers in speech recognition and machine learning, and others who have become partners in external academia. Bo is a great advocate for MSR and a driving force for building a strategic partnership with Tsinghua University.



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