Collaborating with Microsoft Research

Dr Daron G Green
General Manager
Microsoft Research
Overview

• External Research: vision/mission

• Focal areas for Microsoft Research’s external engagements
  note: not an exhaustive summary

• Anatomy of a good project

• How to engage with MSR
<table>
<thead>
<tr>
<th>ER Vision</th>
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<tbody>
<tr>
<td>Work broadly with the academic and research community to speed research, improve education, foster innovation and improve lives around the world.</td>
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<table>
<thead>
<tr>
<th>Mission</th>
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<tr>
<td>Support university research through collaborative partnerships</td>
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<tr>
<td>Accelerate university research and education through technology investments</td>
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<tr>
<td>Inspire the next generation of researchers and scientists</td>
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<tr>
<td>Drive awareness of Microsoft contributions to research</td>
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<tr>
<th>Strategy</th>
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<tbody>
<tr>
<td>Work with leading researchers on important scientific discoveries</td>
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<tr>
<td>Ensure a diverse, world-wide portfolio</td>
</tr>
<tr>
<td>Exploit, complement, and collaborate with Microsoft research expertise</td>
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<tr>
<td>Leverage Microsoft products and tech.</td>
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<td>Extend use of MS products in key communities</td>
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<tr>
<td>Foster broad deployment and experimentation</td>
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<tr>
<td>Demonstrate application of MS tools to science</td>
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<td>Deliver open, interoperable solutions and drive tech transfers</td>
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<tr>
<td>Sponsor and participate in events that bring researchers together</td>
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<td>Foster and develop talent and leadership in STEM-D research</td>
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<td>Drive awareness of MS’s diversity leadership</td>
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<tr>
<td>Improve perception of Microsoft in leading research universities</td>
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<tr>
<td>Showcase applications of computing to major societal challenges</td>
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<tr>
<td>Leverage our research partners to increase impact and reach</td>
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<tr>
<td>Share our message via events, social nets &amp; traditional media</td>
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Focal areas for Microsoft Research’s external engagements
Focal areas

- Regional Outreach/Engagements
- Advanced Research Tools and Services
- Core Computer Science
- Earth, Energy and Environment
- Education and Scholarly Comm.
- Health & Wellbeing
Health and Wellbeing

Revolutionizing Bioinformatics
Previous bioinformatics project outputs

Jaroslav Pillardy, Computational Biology Service Unit, Cornell University
• BioHPC: Suite of 28 applications modified and adapted for efficient use in an Windows HPC environment with ASP.NET interface
• Currently supports the areas of DNA sequence analysis, protein structure prediction, population genetics and phylogenetics

Jim Hogan, SilverMap: Queensland University of Technology
• MQUTer supports research into bioinformatics, sensor networks, visualization and parallelism on the Microsoft platform
• Six new tools – the latest under development using MBF and Silverlight 3 which visualizes DNA sequence similarity and is integrated into MBF (and will shortly be available as an Excel plug-in)

Robin Gutell, Center for Computational Biology and Bioinf., UT Austin
• Suite of tools to explore evolutionary relationships and predict function of RNA molecules
• Available as a website – also a complementary open-source suite of Windows-based tools, under development using MBF (H1 FY11)

+ Cancer Bioinformatics in ER

Marty Humphrey, Department of Computer Science, University of Virginia
• The caBIG platform connects consumers, the care delivery system, and the research community. Close to 60 NCI-designated Cancer Centers are deploying caBIG® infrastructure and tools, as are 16 Community Cancer Centers that in the aggregate touch 20 million lives.
• This project pilots caBIG clients on Windows, leveraging and extending MBF, and tutorials demonstrating the value of Microsoft technologies to the caBIG developer and user community.
Chasing HIV – to web scale analysis (Tony & David’s talks)

Tracking the evolution of HIV inside an individual using advanced machine-learning algorithms
Convergence on strategic platform for Bioinformatics

Microsoft Biology Foundation

- Beta 1: Nov 5, 2009 (MS Connect)
- Beta 2: Feb 10, 2010 (CodePlex)
- V1 release: July 2010
- 200+ academics enrolled in TAP
- Illumina early adopter
- UW (Eichler lab) early adopter
- Johnson & Johnson early adopter
- Aditi Technologies to partner
- HLS, HSG, HPC, TC, .NET all engaged
- Bio-IT Alliance partner
- Leveraging MSR/MS assets: Pivot, NodeXL, TRIDENT, IronPython, etc
- Showcasing MS products: Excel/Office, Visual Studio 2010, .NET 4.0, WPF, Silverlight

- Launch at 2010 FacSum
- 9 keynote presentations planned H2, FY10
- Training course in prep
- Community ownership
- Foundation to future MSR genomics projects
- Foundation to all future ER genomics engagements with academia

Convergence on strategic platform for Bioinformatics

research.microsoft.com/en-us/collaboration/tools/mbf.aspx
Earth, Energy and Environment

Transforming earth sciences
Worldwide Telescope

Project: Seamless Astronomy at Harvard
Windows Client launched at TED’08
Silverlight Client launched at MIX’09
Over 6 Million unique visitors
TED’10 demo by Blaise to show Bing Maps SL integration with WWT SL

WWT Outreach

WWT at center of China eclipse July ’09
Localizations in 5 languages
Community Servers in China & Japan
WWT Coursework developed
Galileo Tour celebrating 400th anniversary launched
WWT Ambassadors program (Harvard & WGBH) NSF funding

NASA Space Act Agreement

NASA provide content in WWT format for Moon and Mars – launch March ‘10
SAA allowed MS to have more combined marketing
PDC Azure Demo by DPE – Be A Martian, leveraged GalaxyZoo effort
NASA Explorer Schools to adopt WWT Planetarium

WWT|Earth

Visualize environmental datasets
Bring gaming experience to environmental data
Have high-end Rich Internet App to complement Bing Maps
Prototype demo’d at AGU’09
Re-architecture building on Win7, DX11, etc – exposing API
3D Scientific exploration and inquiry tool
Education and Scholarly Communication

*Enabling eResearch*
Enabling eResearch

**eResearch Tools**

- Office Add-ins shipped 2008-2009
- Creative Commons for Office
- Article Authoring Add-in
- Ontology Add-in
- Chemistry add-in for Word
- Zentity v1 shipped May09
- RIC Framework shipped Dec09

- In partnership with Public Sector (Higher Education) Team, expand academic partner list to 10-20 institutions running RIC Framework (and Zentity)

- Worldwide Partners: Softtek (Mexico); WinVision (NL); SoftEdge (IRE); Armadillo (UK); OTB (US); @Mire (BE) and others in discussions.

- Leveraging MSR/MS assets: MSRA-Libra Project, NodeXL, Trident, etc

- Showcasing MS product: Office (Word & Excel), SharePoint, SQL Server + ADO.Net

- Launch RIC v1.1 formally with British Library in 7/10
- Launch Chem4Word at ACS Annual Meeting in March 2010 (San Francisco)
- Ongoing series of partner “Airlifts” planned for Brazil and North America
Computer Science

The future of computing
UPCRCs with XCG (+DevDiv, VisualStudio)

• Marc Snir (University of Illinois at Urbana-Champaign)
  • Michael Faiman and Saburo Muroga Professor
  • Director, Illinois Informatics Institute

Applications:
• Tele-immersion, gaming (Smoke 2.0 demo), computer vision, medicine (MRI reconstruction, stroke simulation), parallel browsing, telecommuting, computational finance (auctions, value-at-risk estimation), music

Also...
• Parallel Programming Patterns, Safe parallel programming, Easy tuning, Auto tuning, Architecture, OS, Safe programming, Performance programming

• David Patterson (University of California at Berkeley)
  • E. H. and M.E. Pardee Chair
  • Director, Parallel Computing Laboratory (Par Lab)
## Many-core and parallel programming

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**Technical Computing Group/HPC**

**XCG/Azure**
Regional Outreach/Engagements

Digital-/e-Heritage outreach

Focal areas

Core Computer Science
- Software Engineering + Tools
- Programming Languages and patterns
- CS Education
- Data Intelligence

“NUI”

Earth, Energy and Environment
WWTE

Education and Scholarly Comm.
Tools + roll-out

Health & Wellbeing
MBF

New/changed

Advanced Research Tools and Services:
High-quality and high-impact software release and community adoption
Focal areas

Regional Outreach/Engagements
Digital-/e-Heritage outreach

LATAM: **Jaime Puente**

Judith Bishop
Core: Computer Science
- Software Engineering + Tools
- Programming Languages and patterns
- CS Education
- Data Intelligence
- "NUI"

Kris Tolle

Dan Fay
Earth, Energy and Environment
- WWTE
- +cloud

Lee Dirks
Education and Scholarly Comm.
- Tools + roll-out
- +cloud

Simon Mercer
Health & Wellbeing
- MBF
- +cloud

Derick Campbell
Advanced Research Tools and Services:
High-quality and high-impact software release and community adoption
“NUI”?
Overview

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• Anatomy of a good project

• How to engage with MSR
Anatomy of a good project:

- Aligns with our strategic themes
- Is ‘anchored on’ a Microsoft Researcher and is part of a genuine collaboration
- Builds upon Microsoft products and/or Research tools
- Innovates in a particular domain
- Has opportunity for broad influence/adoption
- Involves open source or, at least, interoperates with other technologies in the domain
- Has social impact (‘improve lives around the world’)
- Provides a good story/demo
• External Research: vision/mission

• Focal areas for Microsoft Research’s external engagements
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• Anatomy of a good project

• How to engage with MSR
OK,...but how do I get involved?

research.microsoft.com/collaboration

About External Research

Fostering collaboration worldwide among academia, industry, and governments

Latin American Faculty Summit 2010

The sixth annual Latin American Faculty Summit unites academic leaders and representatives from multilateral and governmental organizations to share ideas and forge opportunities for creative innovation through research and development. The event, held May 12–14 in Guarujá, Brazil, is organized in collaboration with São Paulo Research Foundation. Learn more...

The External Research group builds partnerships worldwide to advance the research process and its role in innovation. Find projects below by theme or by geographical region, and learn more about supported tools, services, teaching programs, and collaborative institutes.
What will I find there?

- Request for Proposal (RFP) announcements
- Competitions/awards
- Fellowship opportunities
- Access to and previews of our software releases
- Access to research data/services
- Information on our portfolio
- Events
- Links to our existing projects and collaborators
Microsoft Research Software Engineering Innovation Foundation (SEIF) Awards

Request for Proposals

Microsoft Research will shortly be accepting proposals for research grants in seminal software engineering areas, innovative software engineering education methods, and improvements in the software-development process. Microsoft Research anticipates making approximately twelve awards of about US$15,000 to US$25,000 each. Awards are made for the purpose of seed-funding larger initiatives, proofs of concept, or demonstrations of feasibility.

Proposals must be written in English and submitted through the online application tool. Please read the following award details before you submit your application.

On This Page
- Schedule and Deadlines
- Overview
- Goals and Objectives
- Resources
- Monetary Awards
- Eligibility
- Submission Process
- Selection Process and Criteria

Submit
Submit your proposal

Related Links
- Research in Software Engineering
- Computer Science Home
- Computer Science Papers and Presentations
- Collaboration and Funding Opportunities

Contact Us
If you have questions related to this RFP, please send an e-mail message to seif@microsoft.com.
Software Engineering Innovation Foundation Awards

We are pleased to announce the recipients of the Microsoft Research Software Engineering Innovation Foundation (SEIF) Awards 2010. We received 85 proposals for research grants in seminal software engineering areas, innovative software engineering education methods, and improvements in the software development process. After a thorough internal review process, 12 proposals were selected to receive awards for the period June 2010 to May 2011. The SEIF Award recipients are listed below.

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diego Garbervetsky</td>
<td>Resource Usage Contracts for .NET</td>
<td>Universidad de Buenos Aires, Argentina</td>
</tr>
<tr>
<td>Sebastian Uchitel</td>
<td>Strengthening Code Contracts with Typestates</td>
<td>Universidad de Buenos Aires, Argentina</td>
</tr>
<tr>
<td>Karin Breitman</td>
<td>Cloud-Based Software Engineering: Weaving Elasticity into Early Design</td>
<td>PUC do Rio de Janeiro, Brazil</td>
</tr>
<tr>
<td>Gail Murphy</td>
<td>Automatically Finding Help for Framework Usage</td>
<td>University of British Columbia, Vancouver, Canada</td>
</tr>
<tr>
<td>Sunghun Kim</td>
<td>Detecting and Fixing Bugs as they are Created in Visual Studio</td>
<td>The Hong Kong University of Science and Technology, China</td>
</tr>
<tr>
<td>Pankaj Jalote</td>
<td>An Integrated Approach for Software Engineering Projects using Visual Studio</td>
<td>IIIT-Delhi, India</td>
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Multi-word Tag Cloud from Government Dataset Titles (from Tony’s talk)

Ref: Dr. Li Ding, Rensselaer Polytechnic Institute
Microsoft Web N-gram Services

Access petabytes of data via the Web N-gram services (Public Beta).

We invite the whole community to use the Web N-gram services, made available via a cloud-based platform, to drive discovery and innovation in web search, natural language processing, speech, and related areas by conducting research on real-world web-scale data, taking advantage of regular data updates for projects that benefit from dynamic data.

The Web N-gram services provide you access to:

- Content types: Document Body, Document Title, Anchor Texts
- Model types: Smoothed models
- N-gram availability: unigram, bigram, trigram, N-gram with N=4, 5.
- Training size (Body): All documents indexed by Bing
- Access: Hosted Services by Microsoft
- Updates: Periodical updates

Late last year, we introduced a private beta testing of the Web N-gram Services. We are now expanding access in the Public Beta Web N-gram Services to include professors and students at accredited colleges and universities worldwide.

SIGIR Web N-gram Workshop (Call for Papers)
July 23, 2010 – Geneva, Switzerland
Submission deadline: June 11, 2010

Announcements

- SIGIR Web N-gram Workshop with NSF Computing in the Cloud Program Solicitation
  Letter of Intent April 30, 2010

Papers

- Exploring Web Scale Language Models for Search Query Processing, WWW 2010
- An Overview of Microsoft Web N-gram Corpus and Applications, NAACL-HLT 2010

Learn More
What will I find there?

- Request for Proposal (RFP) announcements
- Competitions/awards
- Fellowship opportunities
- Access to and previews of our software releases
- Access to research data/services
- Information on our portfolio
- Events
- Links to our existing projects and collaborators
The Microsoft Research-FAPESP Virtual Institute for IT Research supports high-quality fundamental research in information and communication technologies that relates to social and economic development challenges in the region:

- Collaboration from December 2006
- 3 Calls for Proposals published
- 11 research projects in execution
- Research workshops held annually
- Overall joint investment for the Institute US$2M
Hub Universities:
• Pontificia Universidad Católica de Chile; Universidad de Chile

Spoke Universities:
• Tecnológico de Monterrey, Mexico; Instituto Politécnico Nacional, Mexico; Universidad de la República, Uruguay; Universidad de Buenos Aires, Argentina; University of the West Indies, Trinidad & Tobago; Universidad de los Andes, Colombia; Universidad de Costa Rica

3 year summary:
• 400 researchers from 80 institutions in 19 countries connected to the LACCIR network
• 170 world class expert researchers evaluate research proposals.
• 15 regionally international collaborative research projects funded by LACCIR.
• 50 international publications
• 18 graduate students have visited other Latin American countries for a research stay, connecting 13 countries
LACCIR Request for Proposals 2010

LACCIR RFP 2010 focuses on the areas of Healthcare, Education, Energy and Earth, Environment & Climate Change.
Total amount available **US$300,000**. LACCIR anticipates funding up to 5 proposals.

Estimated Schedule and Deadlines for LACCIR 2010 research proposals

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<tbody>
<tr>
<td>First date for submission of proposals:</td>
<td>June 2010</td>
</tr>
<tr>
<td>Last date for submission of proposals:</td>
<td>September 2010</td>
</tr>
<tr>
<td>Notification of Awards:</td>
<td>December 2010</td>
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</table>

LACCIR Short Stays Program 2010

Support the completion of Post Graduate dissertations in Computer Science developed in the Latin American and Caribbean region by partially financing useful research stays in other research centers in the region. **Keep Reading**

Schedule and Deadlines for LACCIR 2010 Short Stays Program

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<tbody>
<tr>
<td>First date for submission of proposals:</td>
<td>May 17th 2010</td>
</tr>
<tr>
<td>Last date for submission of proposals:</td>
<td>August 30th 2010</td>
</tr>
<tr>
<td>Notification of Awards:</td>
<td>October 30th 2010</td>
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</tbody>
</table>
What won’t I get from there?

- A guarantee of $$s
What won’t I get from there?

• A guarantee of collaboration
OK, beyond surfing the web, how do I get involved?

- Exploit our existing tools/technologies/services
- Give feedback and/or make extensions
- Look at which Microsoft Researchers are active in your field... ...go where they go (conferences/events)
- Talk to some of our existing collaborators
- Talk to Jaime and/or the Theme lead
- Respond to the RFPs/calls
- Offer students for internships
- Submit proposals into LACCIR/FAPESP virtual institute calls
- As a last resort direct proposals (usually best as short ‘concept descriptions’)
research.microsoft.com/collaboration
Thank you