Microsoft® Research

Faculty Summit 2010

Guarujá, Brasil | May 12 – 14 | In collaboration with FAPESP

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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

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

Focal areas for Microsoft Research's external engagements

Focal areas


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

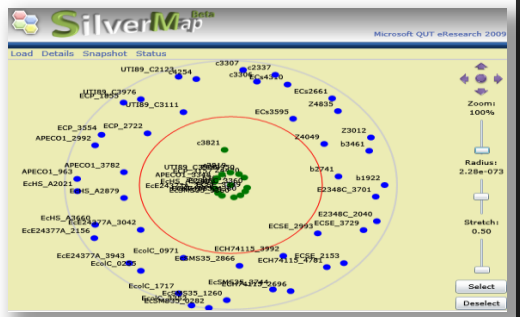
Health and Wellbeing

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

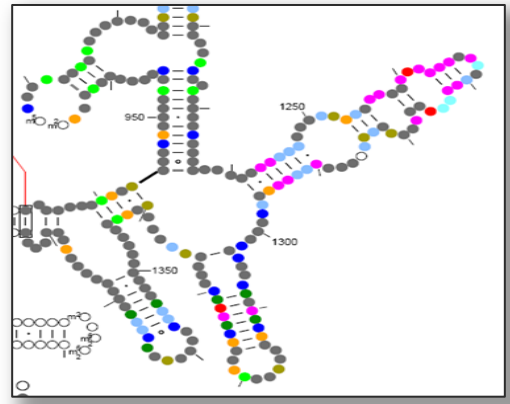


Jim Hogan, SilverMap: Queensland University of Technology

- 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.

caBIG cancer Biomedical Informatics Grid

Chasing HIV – to web scale analysis (Tony & David's talks)


InfoTech | Research

HECKERMAN at work in a lab at the University of Washington

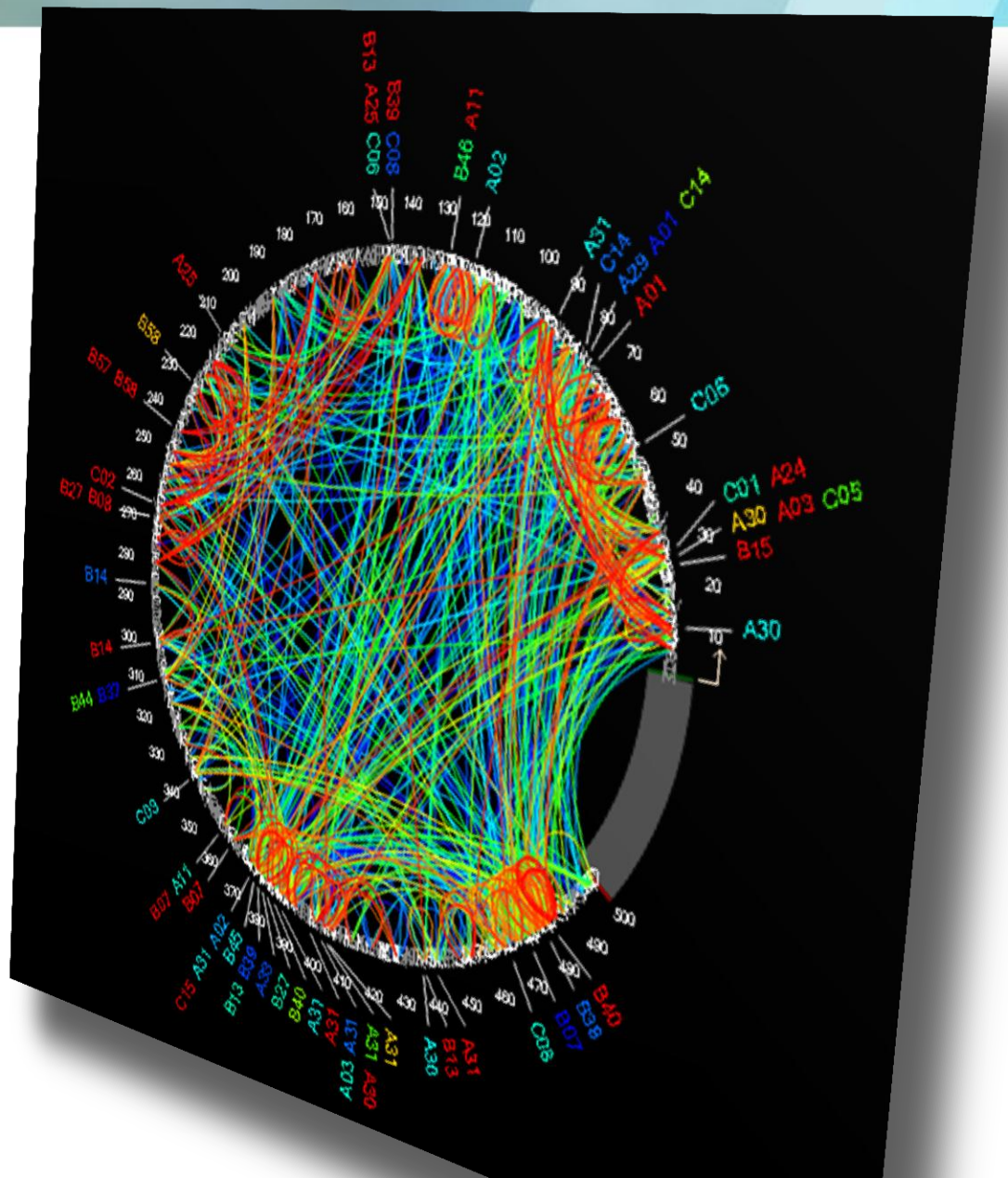
Using Spam Blockers To Target HIV, Too

A Microsoft researcher and his team make a surprising new assault on the AIDS epidemic

BY STEPHEN BAKER AND JAY GREENE

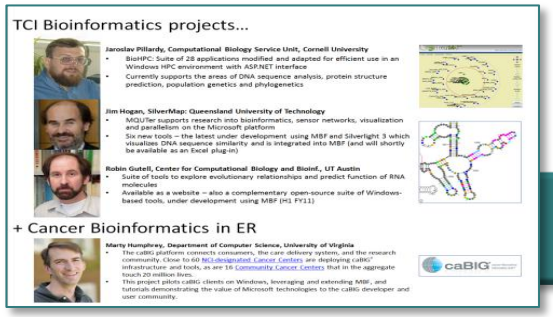
Similar mutations may crop up in computer and medical viruses

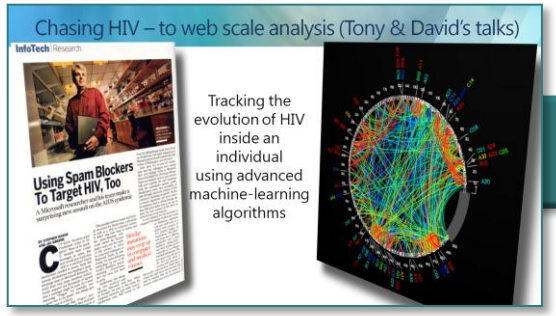
Tracking the evolution of HIV inside an individual using advanced machine-learning algorithms



Convergence on strategic platform for Bioinformatics

research.microsoft.com/en-us/collaboration/tools/mbf.aspx





Azure engagement through XCG (Azure BLAST, PhyloD services)

Product engagement and prototyping use by TC, HSG

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**

Earth, Energy and Environment

Transforming earth sciences

Worldwide Telescope

www.worldwidetelescope.org

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

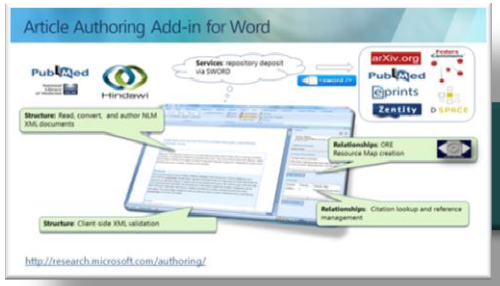
Prototype demo'd at AGU'09

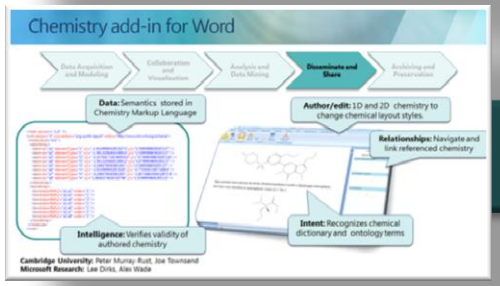
Re-architecture building on Win7, DX11, etc – exposing API

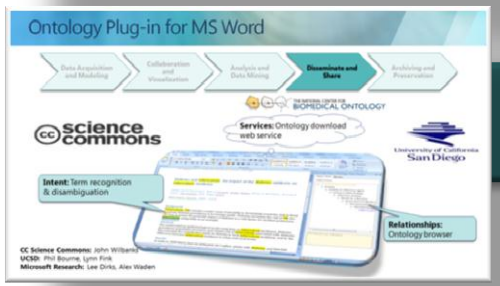
3D Scientific exploration and inquiry tool

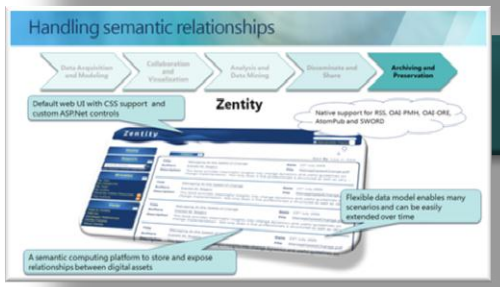
Education and Scholarly Communication
Enabling eResearch

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

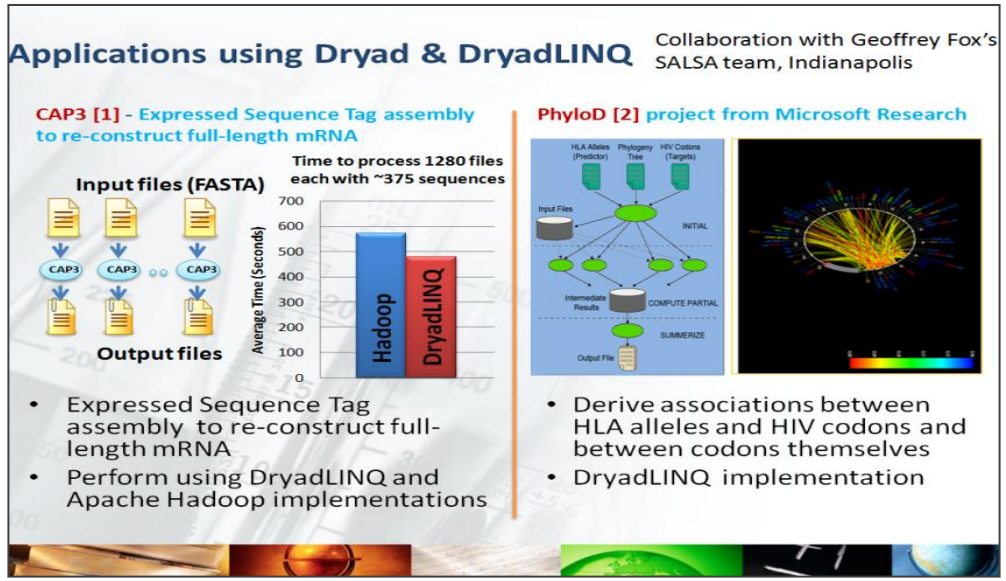
Also…

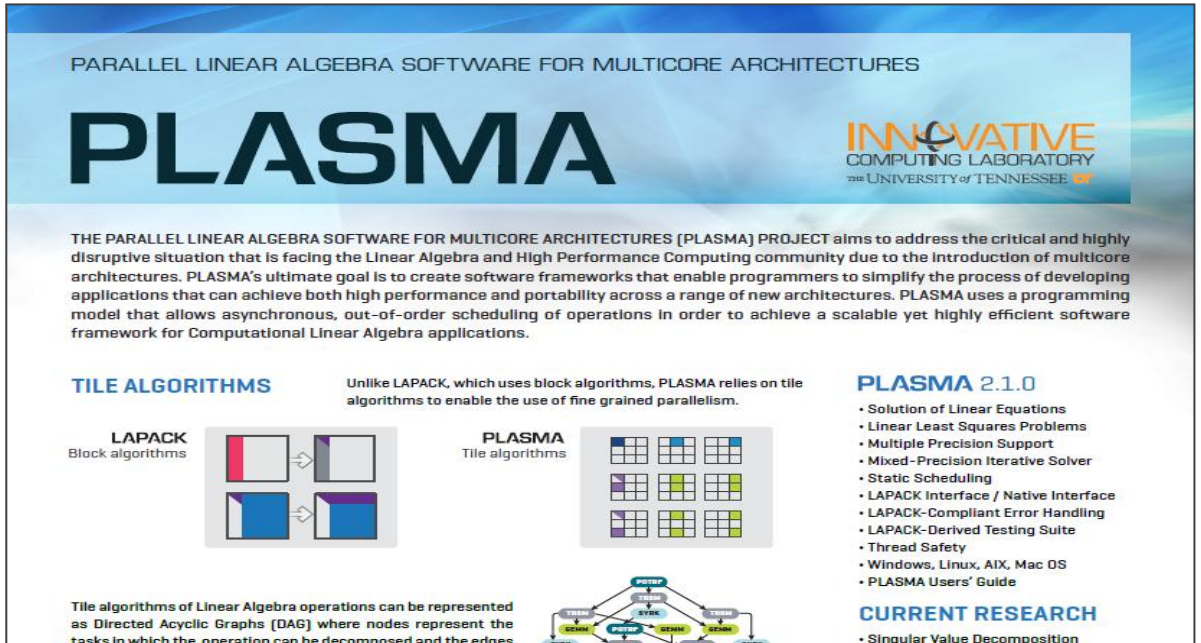
- Parallel Programming Patterns, Safe parallel programming, Easy tuning, Auto tuning, Architecture, OS, Safe programming, Performance programming

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

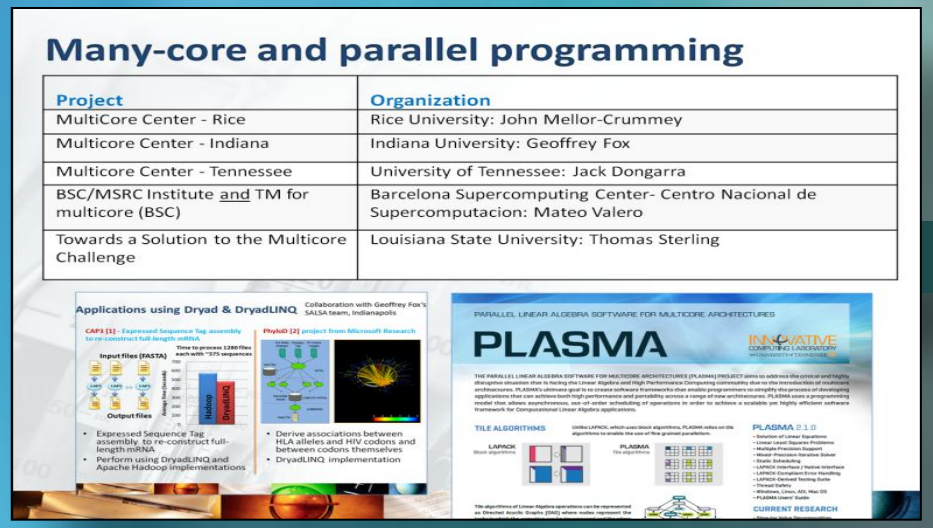
Many-core and parallel programming

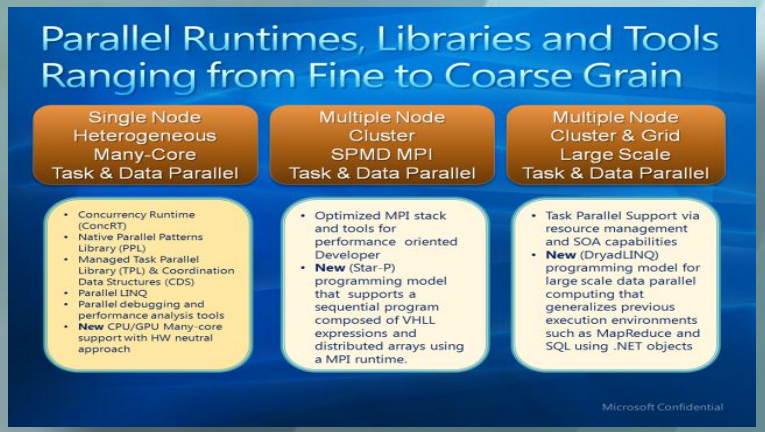
Project	Organization
MultiCore Center - Rice	Rice University: John Mellor-Crummey
Multicore Center - Indiana	Indiana University: Geoffrey Fox
Multicore Center - Tennessee	University of Tennessee: Jack Dongarra
BSC/MSRC Institute and TM for multicore (BSC)	Barcelona Supercomputing Center- Centro Nacional de Supercomputacion: Mateo Valero
Towards a Solution to the Multicore Challenge	Louisiana State University: Thomas Sterling

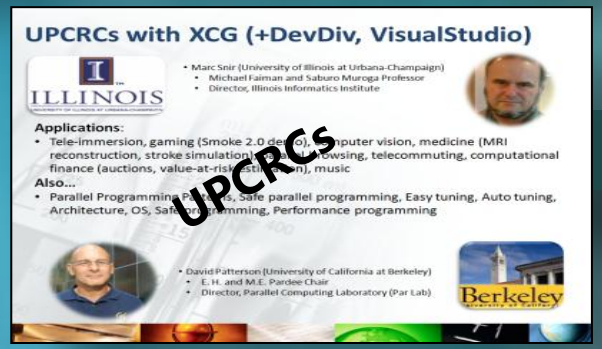


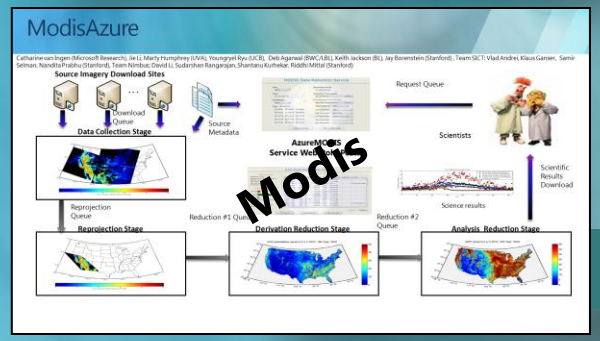


Technical Computing Group/HPC





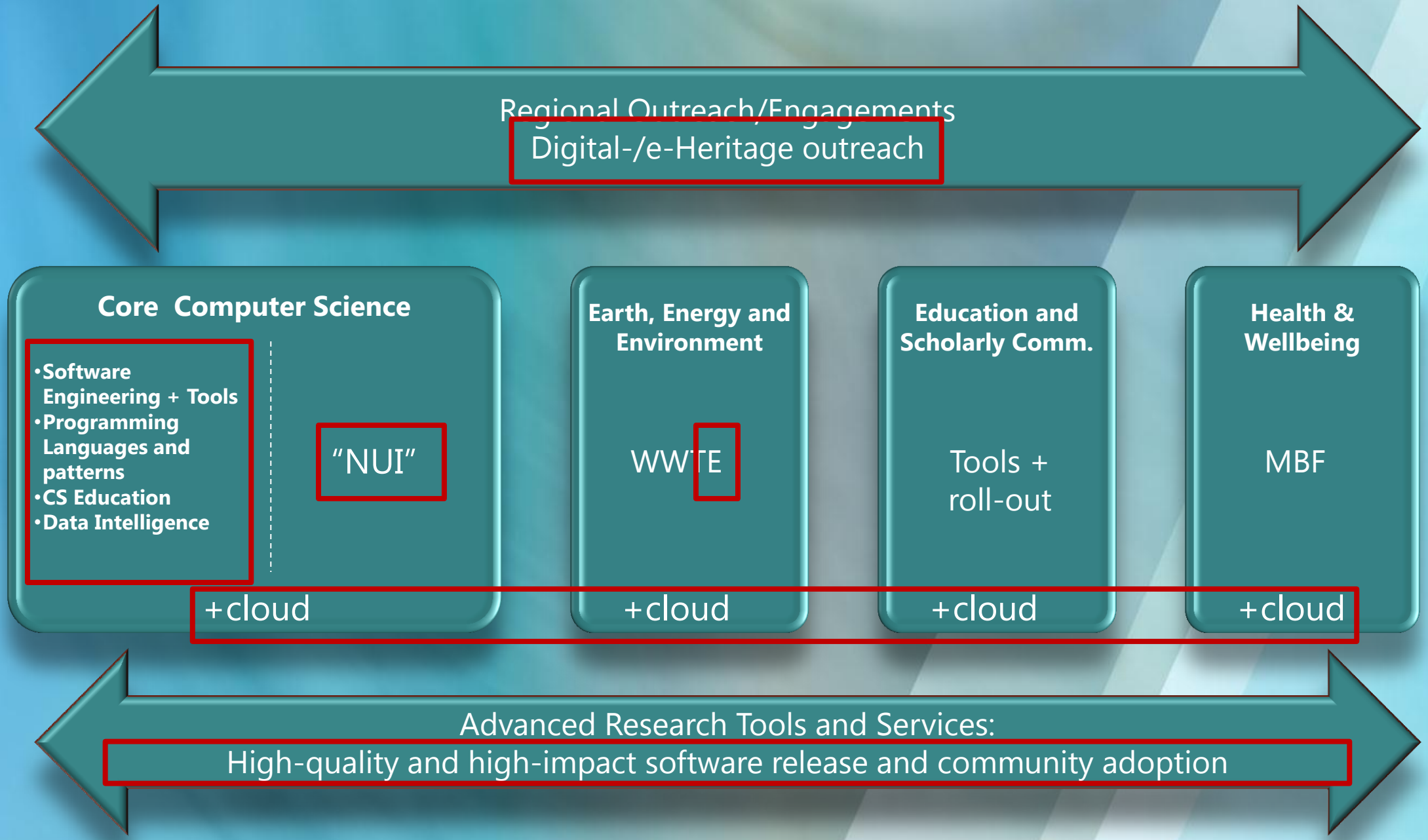




XCG/Azure

New/changed

Focal areas



Focal areas

Regional Outreach/Engagements
Digital-/e-Heritage outreach

LATAM: **Jaime Puente**

Judith Bishop **Kris Tolle**
Core Computer Science

- **Software Engineering + Tools**
- **Programming Languages and patterns**
- **CS Education**
- **Data Intelligence**

"NUI"

+cloud

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”?

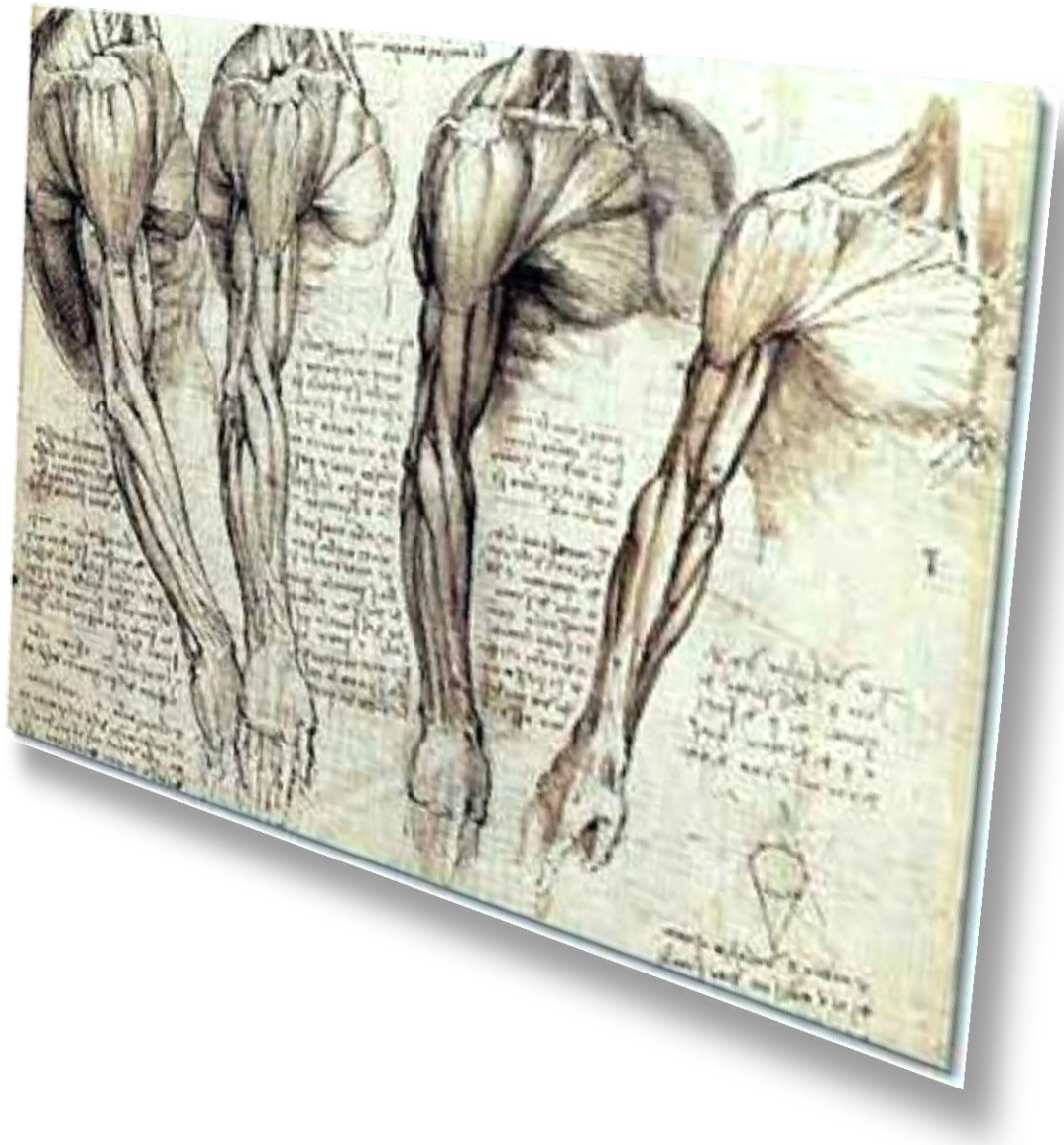
Overview

- 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

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



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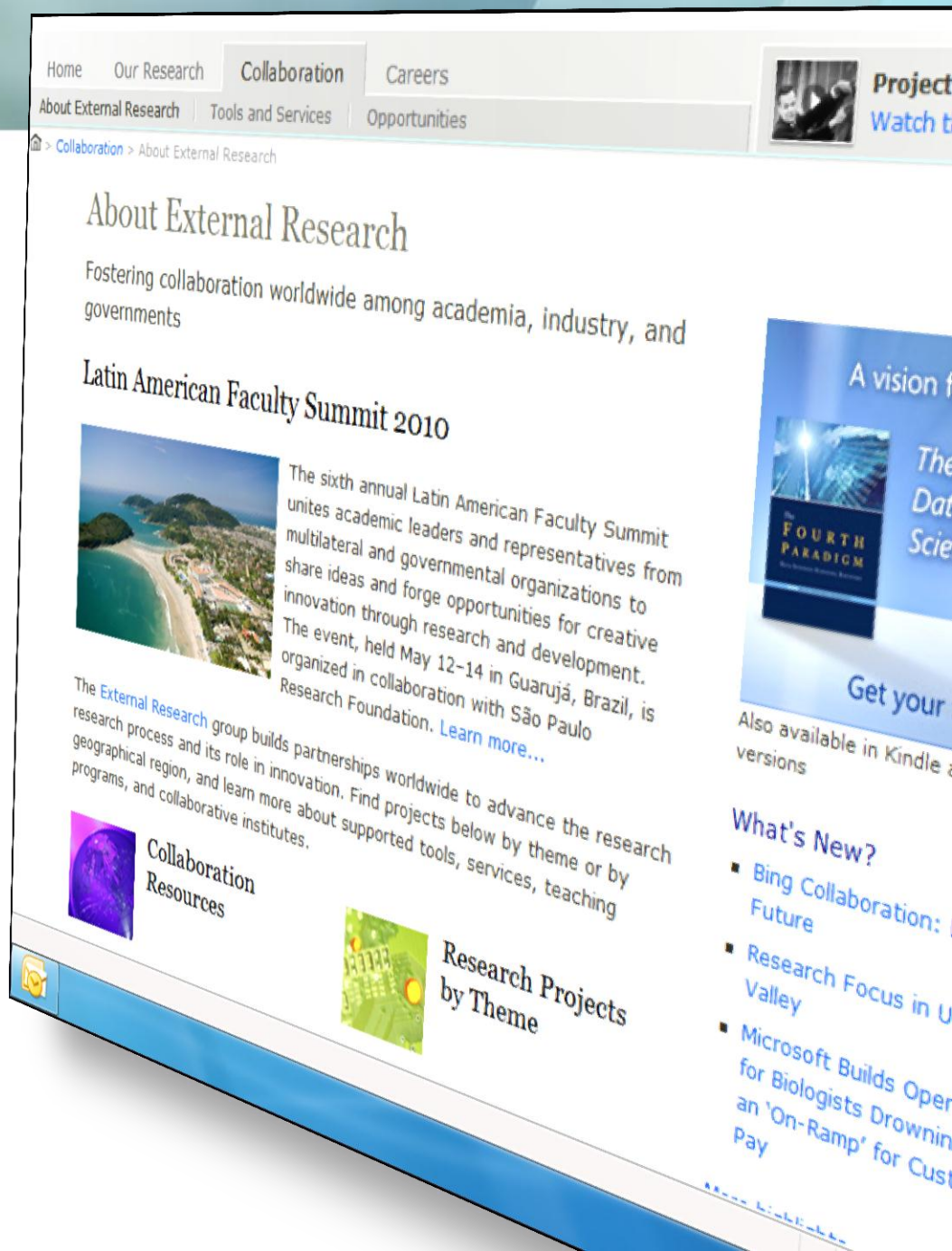
OK,…but how do I get involved?

research.microsoft.com/collaboration

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

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.

Name	Title	Institution
Diego Garbervetsky	Resource Usage Contracts for .NET	Universidad de Buenos Aires, Argentina
Sebastian Uchitel	Strengthening Code Contracts with Typestates	Universidad de Buenos Aires, Argentina
Karin Breitman	Cloud-Based Software Engineering: Weaving Elasticity into Early Design	PUC do Rio de Janeiro, Brazil
Gail Murphy	Automatically Finding Help for Framework Usage	University of British Columbia, Vancouver, Canada
Sunghun Kim	Detecting and Fixing Bugs as they are Created in Visual Studio	The Hong Kong University of Science and Technology, China
Pankaj Jalote	An Integrated Approach for Software Engineering Projects using Visual Studio	IIIT-Delhi, India

Related Links

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

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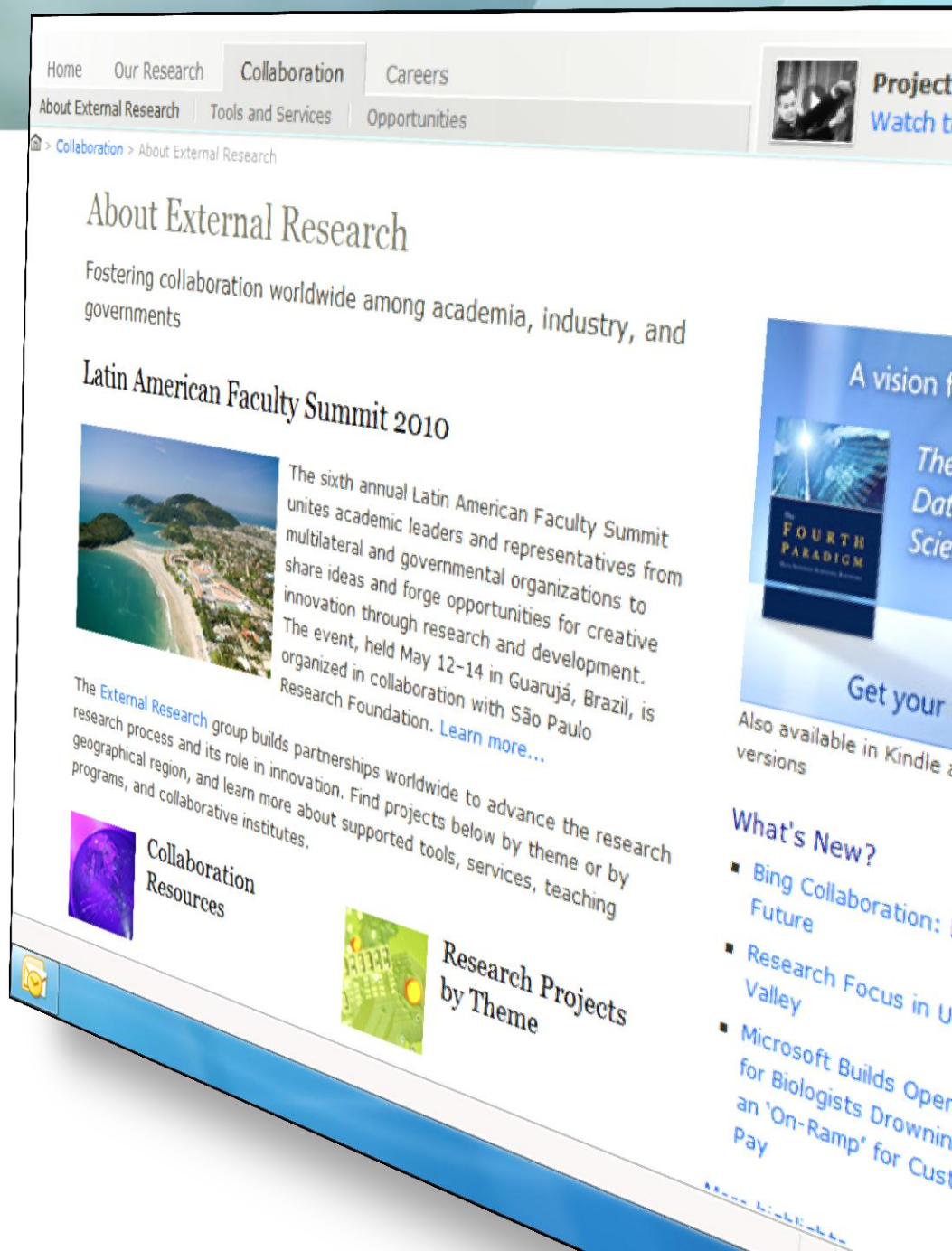
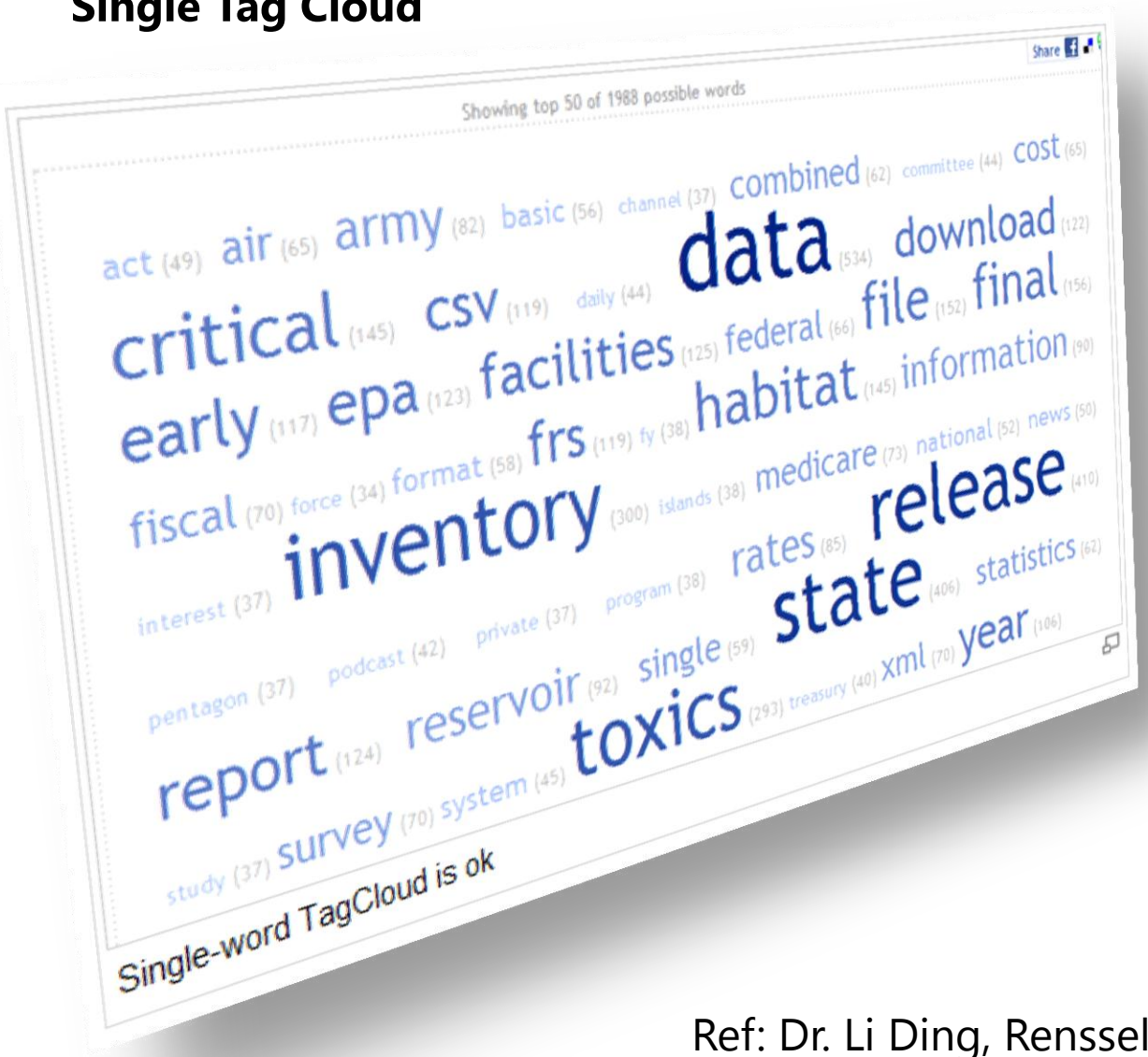


Multi-word Tag Cloud from Government Dataset Titles (from Tony's talk)

Single Tag Cloud



Multi Tag Cloud

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.

bing Web N-gram is brought to you by Microsoft Research in partnership with Microsoft Bing.

Featured Demos

- Multi-word Tag Cloud from Government Dataset Titles

Announcements

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

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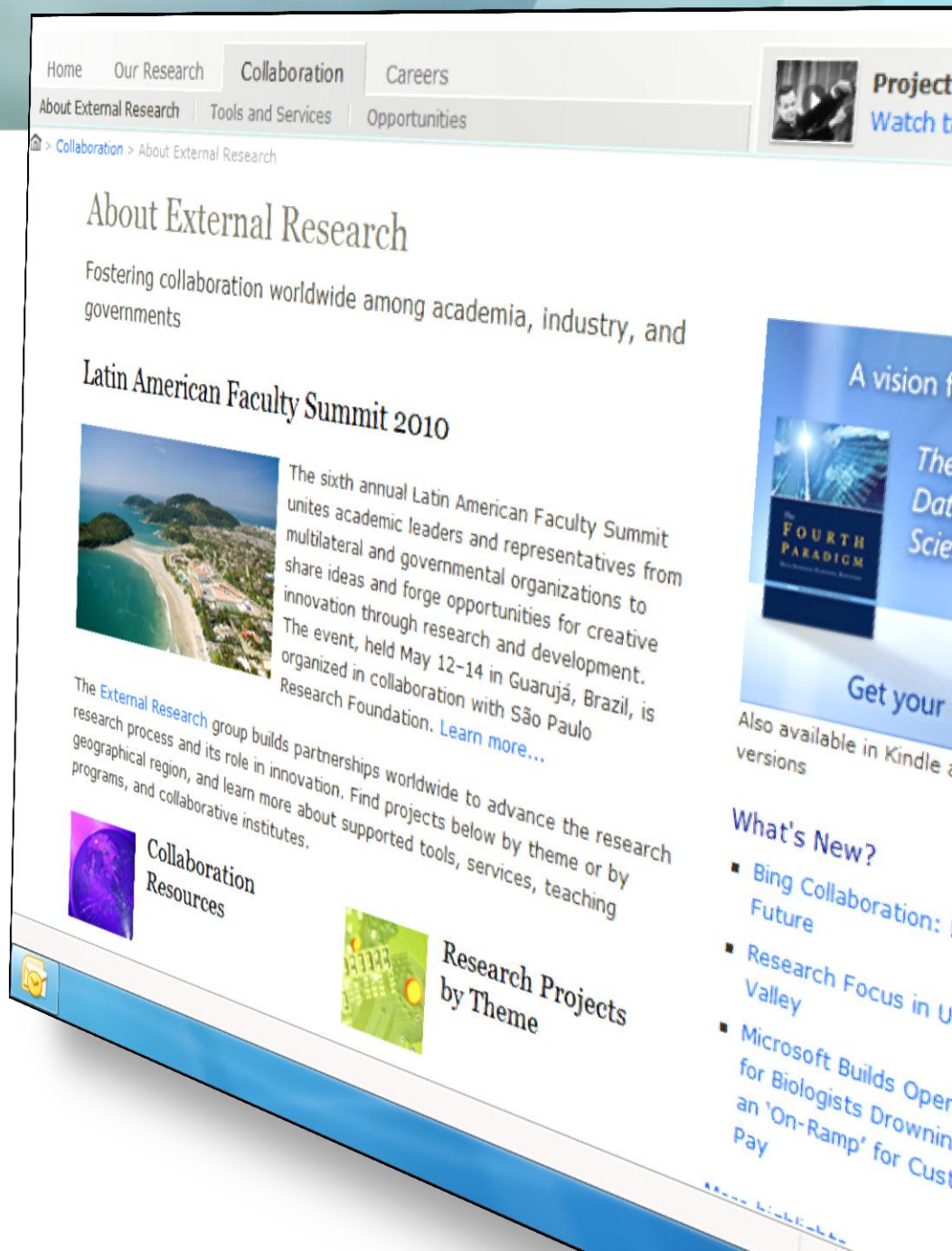
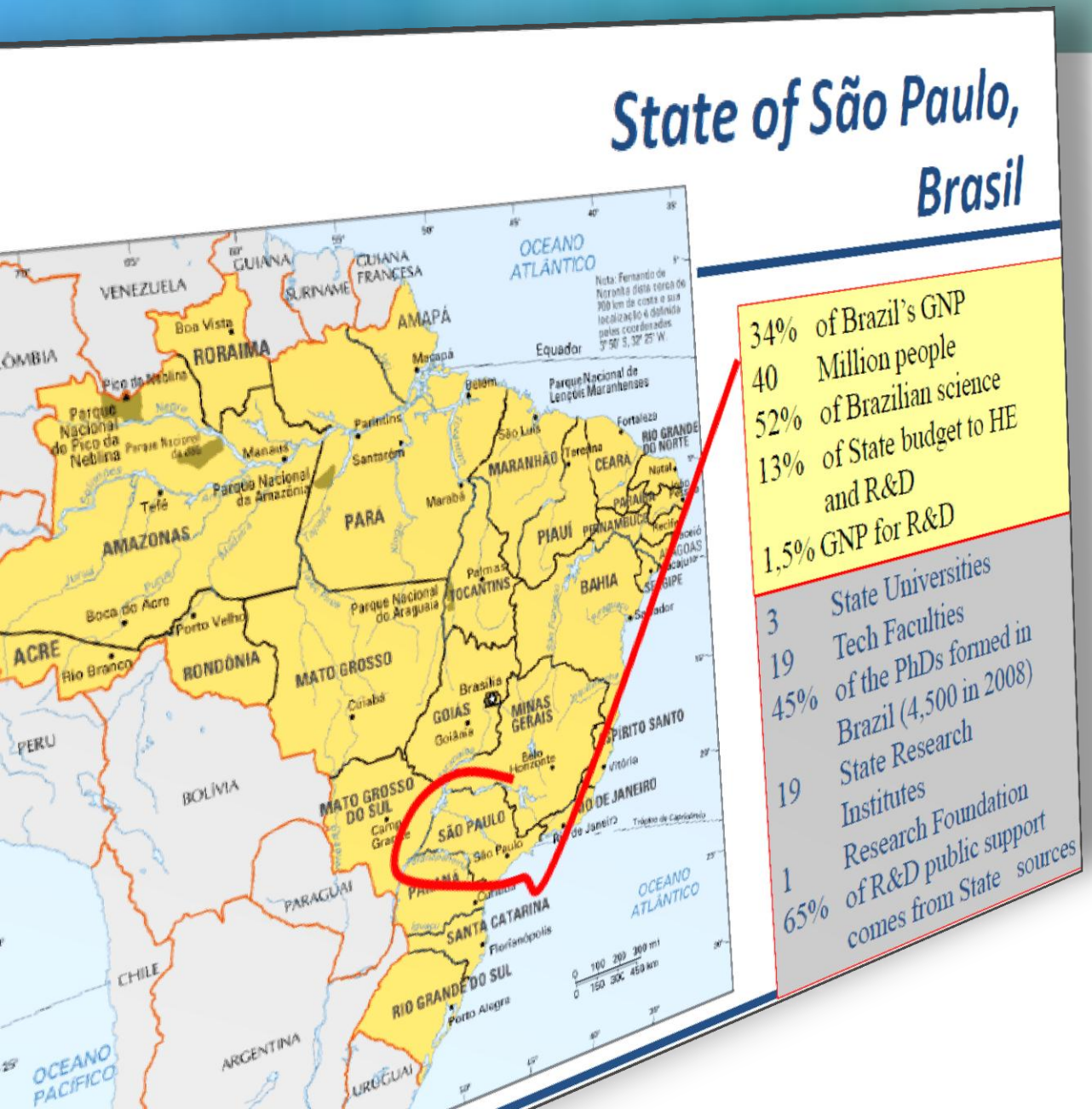


MSR-FAPESP Virtual Institute for IT RESEARCH



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

Latin American and Caribbean Collaborative ICT Research Federation

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

www.laccir.org

Home
About Us
Activities & Highlights
Research Map
Keynote Speeches
LAC Journals
News
RFP Request for Proposals
Short Stays Program
MSR-LA Int. & Fellowships
Technical Committee
Research Projects
Associated Initiatives
LAC Research Observatory
Research Teams
Video Conference
Contact Us
Workspaces

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 6 proposals.

Estimated Schedule and Deadlines for LACCIR 2010 research proposals

First date for submission of proposals:	June 2010
Last date for submission of proposals:	September 2010
Notification of Awards:	December 2010

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

First date for submission of proposals:	May 17th 2010
Last date for submission of proposals:	August 30th 2010
Notification of Awards:	October 30th 2010

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’)

Reminder…

research.microsoft.com/collaboration

Thank you