MICHAEL L. BRUNDAGE

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SKILLS

Excellent leadership and communication skills (spoken and written).

Proficient in many programming languages, including: JavaScript, Python, SQL, Java, C, C++, XSLT, Swift, x86 and PPC assembly, Ruby, Perl, and many others.

Experience creating and using data science algorithms, mobile and desktop applications, and distributed services for Unix, iOS, Mac OS, Windows, and Xbox.

EXPERIENCE

Staff Research Scientist — Nov, 2016 – present
Supply Chain — **Google, Inc.**

- TBD

Principal Data Scientist — Jan, 2015 – Oct, 2016
Windows and Devices Group — **Microsoft Corporation**

- Shipped Windows 10.
- Led/advised/completed various data science projects across the WDG organization.
- Architect for the WDG Experimentation Platform
- Created statistical methods to compare Windows quality and performance across builds.
- Peer reviewer for the Microsoft Journal of Applied Research (MSJAR).
- Session Chair for the Machine Learning, Analysis, & Data Science conference (MLADS).

Principal Engineer — Nov, 2012 – Jun, 2013
Secret Project — **Amazon.com**

- First engineer hired into major new business.
- Designed and implemented the technical architecture, and created CEO demonstrations.
- Represented Amazon at the MIT Media Lab.
- Hired 30+ senior/Principal software engineers and research scientists.

Principal Engineer — Mar, 2009 – Nov, 2012
Search Experience — **Amazon.com**

- Co-created the Data Science role and career ladder at Amazon.
- Changed Amazon Search page architecture to AJAX.
- Drove company-wide and Search page latency reduction and advised external CEOs.
- Created one of the challenges for Amazon's first-ever Machine Learning HackDay.
- Implemented many Search page features, including client-side error and event logging and a novel click prediction algorithm, and the team's metrics dashboard.
- Created many dozens of A/B experiments with significant business impact.
- Bar Raiser for Principal Engineers and Data Scientist interviews.
- Analyzed petabyte data sets of customer behavior and website latency.

Distinguished Architect — Dec, 2007 – Dec, 2008
Technology and Strategy — **Yahoo, Inc.**

- Advised the CEO and executive staff on deep technical strategy and M&A.
- Created the Cloud Computing and Audience Service Engineering organizations.
- Influenced major changes to Yahoo! Production Operations.
- Implemented iPhone applications and other technical demonstrations.
- Technical liaison for our AT&T relationship.

EXPERIENCE (continued)

Senior Principal Architect — Apr, 2007 – Dec, 2007
Platform — **Yahoo, Inc.**

- Opened and staffed the Yahoo! Bellevue office.
- Helped create the Y!OS Yahoo! Open Strategy.
- Invented the Yahoo! Query Language (YQL).
- Implemented the first version of the internal Web Services toolkit.
- Acted as local "paranoid" (security architect).

Emulation Ninja — Nov, 2005 – Apr, 2007
Xbox Console & Consumer Software — **Microsoft Corporation**

- Responsible for the Xbox 360 kernel and operating system.
- Led the virtual Xbox performance team.
- Shipped three system updates and four updates to backwards compatibility.
- Implemented MP4 support for Xbox Live Video Marketplace and Zune connectivity.

Software Design Engineer — May, 2004 – Nov, 2005
Xbox Software Team — **Microsoft Corporation**

- Implemented major parts of the Xbox emulator for backwards compatibility.
- Shipped the Xbox 360.
- Created the compatibility beta program, FAQ, and customer support pages on xbox.com
- Implemented parts of the Xbox 360 Dashboard and Guide.

Technical Lead — Jan, 2002 – May, 2004
WebData XML Team — **Microsoft Corporation**

- Invented the .NET XML query architecture and System.Xml.Query namespace.
- Responsible for Microsoft's XML query optimizer for XQuery and XSLT.
- Shipped SQL Server 2000 & 2005, Visual Studio 2005, Windows XP, and Office 2007.
- Advised many other Microsoft teams and external customers.
- Presented on Microsoft technologies at major industry conferences.

Software Design Engineer — Oct, 1999 – Jan, 2002
SQLXML Team — **Microsoft Corporation**

- Responsible for XPath to SQL translation.
- Shipped SQL Server 2000 and four SQLXML updates.
- Prototyped early XQuery functionality.

Senior Software Engineer — Sep, 1998 – Sep, 1999
NASA Interferometry Science Center (ISC) — **Caltech / JPL**

- Managed the ISC software development team.
- Responsible for software supporting the Keck Interferometer in Hawaii, the Space Interferometry Mission, and the Spitzer Space Telescope.
- Implemented terabyte-scale data archives, user interfaces, and numerical algorithms.
- Created the ISC software development environment and processes.

Computing Analyst — Jun, 1996 – Sep, 1998
Infrared Processing Analysis Center (IPAC) — **Caltech**

- Responsible for astrophysics simulation software still in use today.
- Implemented parts of AstroVR, a pioneering and influential early Internet project.
- Created the IPAC Software Seminar Series.
- Contributed to the 2-Micron All-Sky Survey (2MASS) project.

EDUCATION

Postgrad: Machine Learning — Apr, 2013
Stanford University, Coursera.com

Postgrad: Internet Multicast and Multimedia Technologies — Feb, 1998
University of California, Los Angeles

M.S. in Mathematics — Aug, 1994 – Jun, 1996
University of Washington

B.S. in Mathematics — Aug, 1990 – Jun, 1994
Caltech

- Elected Vice President of the incorporated Caltech undergraduate student body
- Elected Chairman of the Board of Control (the Honor System executive committee)

PATENTS & AWARDS

US Patent 9,424,357, **Predictive page loading based on text entry and search term suggestions** — 2016

US Patent 9,305,090, **Predictive page loading based on suggestion data** — 2016

US Patent 9,299,030, **Predictive page loading based on navigation** — 2016

US Patent 8,949,677, **Detecting anomalies in time series data** — 2015

US Patent 8,949,107, **Adjusting search result UI based upon query language** — 2015

US Patent 8,898,137, **URL rescue by execution of search using information extracted from invalid URL** — 2014

US Patent 8,838,522, **Identifying user segment assignments** — 2014

US Patent 8,682,964, **Progressively loading network content** — 2014

US Patent 8,458,227, **URL rescue by identifying information related to an item referenced in an invalid URL** — 2013

US Patent 8,438,279, **Identifying content that is responsive to a request for an invalid URL** — 2013

US Patent 8,307,073, **URL rescue by correction of encoding errors** — 2012

US Patent 7,519,577, **Query intermediate language method and system** — 2009

US Patent 7,496,599, **System and method for viewing relational data using a hierarchical schema** — 2009

US Patent 7,383,255, **Common query runtime system and API** — 2008

Microsoft Gold Star — 2006

US Patent 7,146,352, **Query Optimizer System and Method** — 2006

Microsoft Gold Star — 2003

NASA Grant NRA-96-10-OSS-055, **A Collaborative Environment for the Space Interferometer Mission** — 1996

Caltech Hinrichs Leadership Award (outstanding graduating senior) — 1994

Caltech Don Shepard Essay Contest Winner — 1993

Caltech Robert Andrews Millikan Scholar — 1992

Caltech Robert Andrews Millikan Scholar — 1991

National Merit Scholar — 1990

SELECT PUBLICATIONS

XQuery: The XML Query Language
Michael Brundage.
2004, Addison-Wesley.

Professional XML Databases
Kevin Williams, Michael Brundage, et al.
2000, Wrox Press.

The Circumstellar Structure of the Class I Protostar TMC-1
Susan Terebey, David Van Buren, Michael Brundage, and Terry Hancock.
2006, The Astrophysical Journal, volume 637, part 1, pp. 811-822.

Microsoft SQL Server 2000 XML Features
2001, Michael Brundage. TechEd Europe, Barcelona Spain.

Developing XML-Driven Applications with SQL Server 2000
Michael Brundage, Andrew Conrad.
2001, TechEd Atlanta, GA and TechEd Europe, Barcelona, Spain.

XML Views in SQL Server 2000
2000, Michael Brundage. XML DevCon Fall, San Jose, CA.

A Candidate Protoplanet in the Taurus Star Forming Region
Susan Terebey, Dave Van Buren, T. Hancock, D. L. Padgett, and Michael Brundage.
1998, Astrophysical Journal Letters, August.

10 Micron Search for Cool Companions of Nearby Stars
Dave Van Buren, Michael Brundage, Michael Ressler, and Susan Terebey.
1998, The Astronomical Journal, August.

Near-infrared Hubble Space Telescope Images of Nearby Protostars
Susan Terebey, Dave Van Buren, T. Hancock, D. L. Padgett, and Michael Brundage.
1998, Bulletin of the American Astronomical Society, Vol. 30, May.

An Object-Oriented Approach to Radiative Transfer in Arbitrary Media
David Van Buren, Michael Brundage, Susan Terebey.
1997, Bulletin of the American Astronomical Society, Vol. 29, December.

From the Even Cycle Mystery to the L-Matrix Problem and Beyond
Michael Brundage.
1996, Thesis, University of Washington.

AstroVR, An On-line Collaborative Environment for Research in Astrophysics
Dave Van Buren, Michael Brundage, Pavel Curtis, and Dave Nichols.
1994, Proceedings of the 1994 ADASS Conference, Baltimore. November.