Biographical Sketch: Aaron Parsons

Education/Professional Preparation

(2009–)	U. of California, Berkeley (UCB). NSF Astronomy and Astrophysics Postdoctoral Fellow
(2009–)	UCB Space Sciences Laboratory (SSL). Honorary Townes Postdoctoral Fellow
(2004–2009)	UCB. Ph.D. Astrophysics
(1998–2002)	Harvard U. Double B.A. Physics and Mathematics

Appointments

(2009–)	NSF Astronomy and Astrophysics Postdoctoral Fellowship, UCB
(2009–)	Honorary Townes Postdoctoral Fellowship, SSL
(2007–2009)	NAIC Pre-Doctoral Researcher, Arecibo Observatory, PR
(2005–2009)	Graduate Student Researcher, UCB
(2002–2004)	Junior Development Engineer, SSL

Publications Most Closely Related to Project

Parsons, A., D. Backer, R. Bradley, J. Aguirre, E. Benoit, C. Carilli, G. Foster, N. Gugliucci, D. Herne, D. Jacobs, M. Lynch, J. Manley, C. Parashare, D. Werthimer, M. Wright. "The Precision Array for Probing the Epoch of Re-ionization: Eight Station Results," *Astronomical Journal*, 139, 1468-1480, April 2010.

Parsons, A., D. Backer. "Calibration of Low-Frequency, Wide-Field Radio Interferometers Using Delay/Delay-Rate Filtering" Astronomical Journal, 138, 1, 219-226. July 2009.

Parsons, A., D. Backer, H. Chen, P. Droz, T. Filiba, D. MacMahon, J. Manley, P. McMahon, A. Parsa, A. Siemion, D. Werthimer, M. Wright. "A Scalable Correlator Architecture Based on Modular FPGA Hardware, Reusable Gateware, and Data Packetization," *Publications of the Astronomical Society of the Pacific*, 120, 873, 1207-1221. November 2008.

Parsons, A., D. Backer, C. Chang, D. Chapman, H. Chen, P. Crescini, C. de Jesus, C. Dick, P. Droz, D. MacMahon, K. Meder, J. Mock, V. Nagpal, B. Nikolic, A. Parsa, B. Richards, A. Siemion, J. Wawrzynek, D. Werthimer, M. Wright. "PetaOp/Second FPGA Signal Processing for SETI and Radio Astronomy (Invited Paper)," *Proc. Asilomar Conference on Signals and Systems, Pacific Grove, CA*. November 2006.

Parsons, A. "The Symmetric Group in Data Permutation, with Applications to a High-Bandwidth Streaming FFT Architecture," *IEEE Signal Processing Letters*. 16, 6, 477-480. June 2009.

Other Significant Publications

Parsons, A., D. Werthimer, D. Backer, T. Bastian, G. Bower, W. Brisken, H. Chen, A. Deller, T. Filiba, D. Gary, L. Greenhill, D. Hawkins, G. Jones, G. Langston, J. Lazio, J. van Leeuwen, D. Mitchell, J. Manley, A. Siemion, H. Kwok-Hay So, A. Whitney, D. Woody, M. Wright, K. Zarb-Adami "Digital Instrumentation for the Radio Astronomy Community," *Astro2010 Decadal Survey White Paper in TEC: Technology Development*, http://arxiv.org/abs/0904.1181. April, 2009.

D. Backer, J. Aguirre, J. Bowman, R. Bradley, F. Briggs, C. Carilli, S. Furlanetto, L. Greenhill, J. Hewitt, C. Lonsdale, M. Morales, A. Parsons, S. Tingay, A. Whitney. "HERA Hydrogen Epoch of Reionization Arrays," *Astro2010 Decadal Survey White Paper in RMS: Radio and Millimeter/Submillimeter Facilites*, April, 2009.

Parsons, A., D. Backer, D. Werthimer, M. Wright. "A New Approach to Radio Astronomy Signal Processing: Packet Switched, FPGA-based, Upgradeable, Modular Hardware and Reusable, Platform-Independent Signal Processing Libraries," *Proc. URSI Conference, Boulder, CO.* January 2006.

Stanimirović, S. , M. Putman, C. Heiles, J. Peek, P. Goldsmith, B. Koo, M. Krčo, J. Lee, J. Mock, E. Muller, J. Pandian, A. Parsons, Y. Tang, D. Werthimer. "First Results from the Arecibo Galactic H I Survey: The Disk/Halo Interface Region in the Outer Galaxy," *Astrophysical Journal*, 653, 1210-1225, Dec. 2006.

Synergistic Activities

Developer of a cross-disciplinary undergraduate lab class focusing on the principles of radios, signal processing, and wireless communications.

Co-founder and advisory board member for the Collaboration for Astronomy Signal Processing and Electronics Research (CASPER), which organizes the development of open-source hardware and signal-processing libraries for community use.

Author of the open-source software toolkit "Astronomical Interferometry in PYthon" (AIPY), with documentation and tutorials, which provides a flexible environment for calibrating, imaging, and analysing interferometric data.

Creator and maintainer of "AstroBaki," an online repository for public-domain pedagogical materials such as lecture notes, laboratory exercises, and homework problems. Contributor of the foundational set of lecture notes for introductory graduate astrophysics classes.

Volunteer science educator in local schools, focusing on generating enthusiasm for science and inquisitiveness about natural phenomena using hands-on demonstrations and activities.

Collaborators and Other Associations

James Aguirre [*U. of Pennsylvania*], Donald Backer [*UCB*], Richard Bradley [*U. of Virginia (UVA) and National Radio Astronomy Obs. (NRAO), Charlottesville*], Chris Carilli [*NRAO, Socorro*], Henry Chen [*UCB*], Daniel Chapman [*Columbia U.*], Chris Dick [*Xilinx Corp.*], Pierre Droz [*UCB*], Terry Filiba [*UCB*], Griffin Foster [*Oxford*], Nicole Gugliucci [*UVA*], Dave Herne [*Curtin U.*], Daniel Jacobs [*U. of Pennsylvania*], Merv Lynch [*Curtin U.*], David MacMahon [*UCB*], Jason Manley [*UCB*], Erin Benoit [*NRAO, Charlottesville*], Peter McMahon [*UCB*], Vinayak Nagpal [*UCB*], Bora Nikolic [*UCB*], Chaitali Parashare [*UVA*], Arash Parsa [*UCB*], Brian Richards [*UCB*], Chris Salter [*Arecibo Obs.*], Andrew Siemion [*UCB*], Jonathan Wawrzynek [*UCB*], Daniel Werthimer [*UCB*], Melvyn Wright [*UCB*]

Advisors and Post-Doctoral Sponsors

Donald Backer [*UCB*], Daniel Werthimer [*UCB*], Chris Salter [*Arecibo Obs.*]