Yaroslav O. Halchenko

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Education

Ph.D. student. GPA 4.00 **January 2003 – May 2009**
Computer Science Dept, Newark NJ, USA
NJIT (NJ Institute of Technology)

PhD degree in Computer Science awarded in May 2009.

MS student. GPA 4.00 **January 2000 – December 2003**
Computer Science Dept, Albuquerque NM, USA
UNM (University of New Mexico)

MS degree in Computer Science after successfully passing MS qualification examination in August 2003.

Graduate student **1998 – 1999**
Computer Systems Dept, Vinnytsia, Ukraine
VSTU (Vinnytsia State Technical University)

Master‘s degree in Laser and Optoelectronic Engineering.

Student **1994 – 1998**
Computer Systems Dept, Vinnytsia, Ukraine
VSTU

Bachelor's degree in Laser and Optoelectronic Engineering with honors.

High School Student **1992 – 1994**
Physical and Mathematical Gymnasia Vinnytsia, Ukraine
No.17

Graduated with honors.

High School Student **1991 – 1994**
Physical and Mathematical Correspondence School Moscow Physical Engineering Institute

High School Student **1991 – 1992**
Aerospace Correspondence School "Soyuz" Moscow Physical Engineering Institute

Work Experience

Senior Research Associate **May 2009 – present**
Dept of Psychological and Brain Sciences, Hanover NH, USA
Dartmouth College

Working with Dr. James V. Haxby. Projects: visual perception, methodologies for statistical analysis of neural data: `http://www.pymvpa.org`, turnkey software platform for neuroscience: `http://neuro.debian.net`, data distribution: `http://datagit.org`

Research Assistant **August 2002 – May 2009**
Mind/Brain RUMBA Laboratory Psych. Department, Rutgers-Newark NJ., USA
http://www.rumba.rutgers.edu

Projects:
- Predictive decoding of the neural data from different imaging modalities (e.g. EEG, fMRI) to gain better understanding of perception (e.g. auditory) and cognitive (e.g. category specific processing) neuroscientific problems
- Graphical modeling of functional brain organization
- Fusion of multiple functional brain imaging modalities (fMRI/EEG) to gain better understanding and localization of underlying neural activity

Debian Developer **December 2005 – present**
Open Source Community (Debian GNU/Linux)
http://www.debian.org

Packaging and maintenance of FOSS software within the Debian GNU/Linux OS.

GNU/Linux Cluster System Administrator **September 2005 – May 2009**
Rutgers-Newark Psych. Department, Rutgers-Newark NJ., USA

Deployment and maintenance of 27 node high availability AMD Opteron based cluster.

Research Assistant **June 2000 – July 2002**
Brain and Computation Laboratory CS Dept., UNM Albuquerque NM, USA
http://www-bcl.cs.unm.edu

Have been working on deploying ICA (Independent Component Analysis) techniques in processing of MEG (Magnetoencephalography) data which are part of the DreamMon project.

Research Assistant **1993 – 1997**
VSTU Vinnitsya, Ukraine

Part-time designer and software developer of the system for diagnostics of mobile segments in vertebral column, which later was utilized in national hospitals of Ukraine.

Software Developer **April 1996 – October 1997**
Liana Company Vinnitsya, Ukraine

Part-time software developer of automated system in Planned-Economic Department of Vinnytsia Chemical Plant (Himprom).

Scholarship Awards

1998-1999

The International Scientific Fund Representatives in Ukrainian Studentship Award.

1995-1996

The International Soros Science Educational Program (ISSEP) Studentship Award.

Main Awards and Honors

Ukraine **1996**
The Academy of Sciences of Ukraine **awarded the work** "Information-Measuring System With Optical Transformation Biomedical Information".

Bucharest, Romania **October 1995**
6th place in ACM South-Eastern European Regional Programming Contest. **1st place** at VSTU.

Kharkiv, Ukraine **April 1995**
4th place in Physics Olympiad among Colleges and Universities of Ukraine. **1st place** at VSTU.

Vinnitsya, Ukraine **1994**
1st place in the Regional Contest for Programming.

Ukraine **1994**
1st place in Competition among teenagers for the best computer program. Became a **Member of the Ukraine Small Academy of Sciences**.

Vinnitsya, Ukraine **1993**
1st place for the best solution of physical and mathematical problems in the competition organized by Moscow Physical Engineering Institute.

Vinnitsya, Ukraine **1993**
3rd place in the Regional Physics Olympiad.

Projects and Contributions

- Cofounder and core developer of NeuroDebian project: http://neuro.debian.net
- Cofounder and core developer of PyMVPA (Python Multivariate Pattern Analysis): http://www.pymvpa.org
- Contributor to various FOSS projects: http://www.ohloh.net/accounts/yarikoptic
- Debian Developer overseeing dozens of packages (http://qa.debian.org/developer.php?login=yoh) and participating in Debian Science and Debian Med projects.

Selected Publications

- *Gobbini, M.I., Gors, J.D., **Halchenko, Y.O.**, Hughes, H.C. and Cipolli, C.* "Processing of invisible social cues" Consciousness and Cognition, 2013.
- *Gobbini, M.I., Gors, J.D., **Halchenko, Y.O.**, Rogers, C., Guntupalli, J.S., Hughes, H. and Cipolli, C.* "Prioritized Detection of Personally Familiar Faces" PLoS ONE, 2013.
- *P.J. Kohler, S.V. Fogelson, E.A. Reavis, M. Meng, J.S. Guntupalli, M. Hanke, **Y.O. Halchenko**, A.C. Connolly, J.V. Haxby, P.U. Tse.* "Pattern classification precedes region-average hemodynamic response in early visual cortex" Neuroimage, 2013.

- ***Y.O. Halchenko*** *and M. Hanke.* "Open is not enough. Lets take the next step: An integrated, community-driven computing platform for neuroscience" Frontiers in Neuroinformatics, 2012.
- *J.-B. Poline, J.L. Breeze, S.S. Ghosh, K.F. Gorgolewski,* ***Y.O. Halchenko****, M. Hanke, C. Haselgrove, K.G. Helmer, D.B. Keator, D.S. Marcus, R.A. Poldrack, Y. Schwartz, J. Ashburner, D.N. Kennedy.* "Data sharing in neuroimaging research" Frontiers in Neuroinformatics, 2012.
- *A.C. Connolly, J.S. Guntupalli, J. Gors, M. Hanke,* ***Y.O. Halchenko****, Y.C. Wu, A. Harve and J.V. Haxby.* "Representation of biological classes in the human brain" Journal of Neuroscience, 2012.
- *K. Gorgolewski, C.D. Burns, C. Madison, D. Clark,* ***Y.O. Halchenko****, M.L. Waskom and S.S. Ghosh.* "Nipype: a flexible, lightweight and extensible neuroimaging data processing framework in Python." Frontiers in Neuroinformatics, 2011.
- *M. Hanke and* ***Y.O. Halchenko****.* "Neuroscience runs on GNU/Linux" Frontiers in Neuroinformatics, 2011.
- *J.V. Haxby, J.S. Guntupalli, A.C. Connolly,* ***Y.O. Halchenko****, B.R. Conroy, M.I. Gobbini, M. Hanke and P.J. Ramadge.* "A Common, High-Dimensional Model of the Representational Space in Human Ventral Temporal Cortex" Neuron, 2011.
- *M. Hanke,* ***Y.O. Halchenko****, J.V. Haxby, S. Pollmann.* "Statistical learning analysis in neuroscience: aiming for transparency" Frontiers in Neuroscience, 4, 2010.
- ***Y.O. Halchenko****, M. Hanke.* "Advancing Neuroimaging Research with Predictive Multivariate Pattern Analysis (MVPA)" The Neuromorphic Engineer, May 2010.
- *J. Ramsey, S.J. Hanson, C. Hanson,* ***Y.O. Halchenko****, R.A. Poldrack, C. Glymour.* "Six Problems for Causal Inference from fMRI" Neuroimage, 49(2), 2010.
- *R.A. Poldrack,* ***Y.O. Halchenko****, S.J. Hanson.* "Decoding the large-scale structure of brain function by classifying mental states across individuals" Psychological Science, 2009.
- *M. Hanke,* ***Y.O. Halchenko****, P.B. Sederberg, M. Hughes.* "The PyMVPA Manual" Available online at `http://www.pymvpa.org/PyMVPA-Manual.pdf`.
- *M. Hanke,* ***Y.O. Halchenko****, P.B. Sederberg, E. Olivetti, I. Frund, J.W. Rieger, C.S. Herrmann, S.J. Hanson, S. Pollmann.* "PyMVPA: a unifying approach to the analysis of neuroscientific data" Frontiers in Neuroinformatics, 3(3), 2009.
- *M. Hanke,* ***Y.O. Halchenko****, P.B. Sederberg, S.J. Hanson, J.V. Haxby, S. Pollmann.* "PyMVPA: A Python toolbox for multivariate pattern analysis of fMRI data" Neuroinformatics, 7(1):37-53, March 2009.
- *S.J. Hanson,* ***Y.O. Halchenko****.* "Brain reading using full brain Support Vector Machines for object recognition: There is no face identification area" Neural Computation, 20(2):486-503, February 2008.
- *S.J. Hanson, C. Hanson,* ***Y.O. Halchenko****, T. Matsuka, A. Zaimi.* "Bottom-up and top-down brain functional connectivity underlying comprehension of everyday visual action" Brain Structure and Function, 212(3-4):231-44, 2007.
- *S.J. Hanson, D. Rebbechi, C. Hanson,* ***Y.O. Halchenko****.* "Dense mode clustering in brain maps" Magnetic Resonance Imaging, 25(9):1249-1262, 2007.
- ***Y.O. Halchenko****, B.A. Pearlmutter, S.J. Hanson, A. Zaimi.* "Fusion of Functional Brain Imaging Modalities via Linear Programming" Presented at NFSI-2003. Chiety Italy September 2003.

- *L.I. Timchenko, Y.F. Kutaev, A.A. Gertsiy,* ***Y.O. Halchenko***. "Method for image coordinate definition on extended laser paths" Optoelectronic and Hybrid Optical/Digital Systems for Image and Signal Processing, Published June 2000, Volume 4148-19.
- *L.I. Timchenko, Y.F. Kutaev, A.A. Gertsiy,* ***Y.O. Halchenko****, M.A. Grudin.* "Approach to parallel-hierarchical network learning for real-time image sequence recognition" The International Symposium on Intelligent Systems and Advanced Manufacturing, 19-22 September 1999, Massachusetts USA. Volume 3836-09.
- *L.I. Timchenco, Y. Kutaev, A. Gertsiy, L. Zagoruiko,* ***Y.O. Halchenko***. "Pre-processing of extended laser path images" Industrial Lasers and Inspection, EOS/SPIE International Symposium. Munich, 14-18 June 1999. Volume 3827-26.
- *L.I. Tymchenko, J. Scorukova, S. Markov,* ***Y.O. Halchenko***. "Image Segmentation on the basis of spatial connected features" Visnyk VSTU, No. 4, pp. 39-43, Ukraine, in Ukrainian, 1998.
- *T.B. Martinyuk, A.V. Kogemiako,* ***Y.O. Halchenko***. "The model of associative processor for numerical data sorting" Visnyk VSTU. No. 2, pp. 19-23, Ukraine, in Ukrainian, 1997.
- *L.I. Tymchenko, J. Scorukova, J. Kutaev, S. Markov, T. Martynuk,* ***Y.O. Halchenko***. "Method Spatial Connected Segmentation of Images" The Third All-Ukrainian International Conference Ukrobraz, Kijiv, Ukraine, November 26-30, 1996.

Chapters

- ***Y.O. Halchenko****, S.J. Hanson, B.A. Pearlmutter.* "Multimodal Integration: fMRI, MRI, EEG, MEG (Chapter 8)" Advanced Image Processing in Magnetic Resonance Imaging, Dekker, book series on Signal Processing and Communications, p. 223-265 ISBN 0824725425, 2005.

Recent Talks

- ***Y.O. Halchenko***. "Open is not enough: benefits from Debian as an integrated, community-driven computing platform" SEA Software Engineering Conference 2013, Boulder, CO April 2013.
- ***Y.O. Halchenko***. "Applied NeuroDebian: Python in Neuroimaging" INCF BC2012, Munich, Germany 2012.
- ***Y.O. Halchenko****, M. Hanke.* "Environments for efficient contemporary research in neuroimaging: PyMVPA and NeuroDebian" UPENN, Philadelphia PA, USA 2012.
- ***Y.O. Halchenko****, M. Hanke and J.V. Haxby.* "Multivariate analysis strategies of neuroimaging data in PyMVPA" Annual Meeting of Society for NeuroScience, Washington DC, USA 2011.
- ***Y.O. Halchenko*** *and M. Hanke.* "The virtues and sins of PyMVPA" EuroScipy satellite "Python in Neuroscience", Paris, France, 2011.
- ***Y.O. Halchenko***. "π's in Debian or Scientific Debian: NumPy, SciPy and beyond" EuroScipy, Paris, France, 2011 http://www.euroscipy.org/talk/4379.
- *M. Hanke and* ***Y.O. Halchenko***. "Debian: The ultimate platform for neuroimaging research" DebConf10, New York, USA 2010, http://penta.debconf.org/dc10_schedule/events/571.en.html.

Recent Poster Presentations

- ***Y.O. Halchenko**, J. Gors, J.S.C. Guntupalli, J.V. Haxby, M.I. Gobbini.* "Investigation of the familiar face recognition model" Annual Meeting of Society for NeuroScience, USA 2012.
- *M. Hanke, **Y.O. Halchenko** and J.V. Haxby.* "NeuroDebian: versatile platform for brain imaging research" Annual Meeting of the Organization for Human Brain Mapping, 2011.
- *M. Hanke, **Y.O. Halchenko**, J.S.C. Guntupalli, A.C. Connolly and J.V. Haxby.* "Unsupervised brain parcellation from functional neuroimaging data" Annual Meeting of the Cognitive Neuroscience Society, 2011.
- *S.V. Fogelson, P.J. Kohler, M. Hanke, **Y.O. Halchenko**, J.V. Haxby, R.H. Granger and P.U. Tse.* "STMVPA: Spatiotemporal multivariate pattern analysis permits fine- grained visual categorization" Annual meeting of the Vision Sciences Society, 2011.
- ***Y.O. Halchenko**, M. Hanke, J.V. Haxby, S. Pollmann, R.D. Raizada.* "Having trouble getting your Nature paper? Maybe you are not using the right tools?" Annual Meeting of Society for NeuroScience, USA 2011.

Didactic Activities

Teaching Assistant:

- "Intermediate Programming (CS251)" Prof. David Ackley (CS Department, UNM, Albuquerque 2000).

Workshops Lecturer:

- "PyMVPA Workshop" Hanse-Wissenschaftskolleg Institute for Advanced Study, Delmenhorst Germany 2014.
- "PyMVPA Workshop" Center for Behavioral Brain Sciences, Magdeburg Germany 2012.
- "PyMVPA Workshop" Psychology and Brain Sciences, Dartmouth College, Hanover USA 2010.

Mentor:

- Guiding more than a dozen contributors of Debian packages of scientific open-source projects
- Consulting undergraduate and graduate students in application of statistical learning methodologies in their neuroimaging-based research

Professional Activities

- Ad-hoc reviewer for IEEE Transactions on Signal Processing, SPIE, JMLR, NeuroReport, Neural Computation, Neuroimage, and Neurocomputing
- Review editor for Frontiers in Brain Imaging Methods
- Guest editor for special section "Python in Neuroscience 2nd Edition" in Frontiers in Neuroinformatics
- Active member of the INCF "Standards for Datasharing" task force

Languages

Fluent in Russian, Ukrainian and English.

References

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