Ned T. Sahin, PhD

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CURRENT POSITIONS

CEO and Founder
Brain Power, LLC

Autism affects 3.5 million families in America, and results in challenges in life skills such as eye contact, social engagement, verbal language, conversation skills, and positive behaviors. There is no medical treatment for autism, and only highly customized education can unlock the child's potential to live a self-sufficient life.

Brain Power makes engaging, game-like software for the new crop of heads-up wearable computers, which allow people with autism to educate themselves on those life skills while looking up and into their world, to work toward happy self-sufficiency. Our brain-science based tools also track and analyze data, and empower the parents and the children with numerical reports on progress and tangible action plans for improvement.

http://www.Brain-Power.com

Associate in Psychology
Department of Psychology
Harvard University

EDUCATION & TRAINING

2010–2012	Fellow	Salk Institute & UC San Diego	Institute for Neural Computation
2007–2010	Post-Doctoral Fellow	Univ. of California, San Diego	Department of Radiology
2003–2007	Ph.D.	Harvard University	Psychology (Cognition, Brain & Behavior)
2000–2007	Doctoral Trainee (T32)	MGH (Mass. General Hospital)	Athinoula A. Martinos Neuroimaging Center
2000–2003	M.S.	MIT	Brain and Cognitive Sciences
1996–1997	Visiting Scholar	Oxford University	Exeter College (Credited year of B.A.)
1994–1998	B.A.	Williams College	Biology *and* Neuroscience

THESES

Ph.D. *Neural Circuits for Reading, Inflecting and Producing Words: Spatiotemporal Mapping with Human Intracranial Electrophysiology and fMRI.*
Harvard. Degree dissertation, Ph.D. Department of Psychology. June, 2007.

(Won the dissertation prize, across all departments at Harvard for 2007: "The Richard J. Herrnstein Prize: to the best dissertation – that exhibits the excellent scholarship, originality and breadth of thought, and a commitment to intellectual independence …")

M.S. *Seeking the Neural Basis of Grammar: English Noun and Verb Morphological Processing Investigated with Rapid Event-Related fMRI and Intra-Cortical Electrophysiology.*
MIT. Degree thesis, Masters of Science. Department of Brain and Cognitive Sciences. June, 2003.

B.A. *Language and Brain: Effects of Arterial Occlusion on Human Brain Morphometry & Specific Language Abilities.*
Williams College. Honors thesis, Bachelor of Arts. Department of Biology. June, 1998.

SELECTED ACADEMIC JOURNAL PAPERS

Womelsdorf, T., Valiante, T., Sahin, N.T., Miller, K., Tiesinga, P., **Dynamic circuit motifs underlying rhythmic gain control, gating and integration.** *Nature Neuroscience* **17**, 1031-1039 (2014)

Sahin, N.T., Pinker, S., Cash, S.S., Schomer, D., & Halgren, E., **Sequential processing of lexical, grammatical, and phonological Information within Broca's Area**. *Science* **326**, 445-449 (2009).

INVITED TALKS • AS CEO OF BRAIN POWER (2013-2015)

Date	Organization	Series / Event	City	Title
2015-06-12	Stanford Neurosurgery	Grand Rounds	Palo Alto, CA USA	Creative Use of Wearables: Unlocking Autism, Empowering the Brain
2015-06-12	Santa Clara County Inclusion Collaborative	Keynote: Annual Retreat	San Jose, CA USA	Use of Wearables in Special Education: Unlocking Autism, Empowering the Brain
2015-06-05	Milton Academy	Commencement Address	Milton, MA USA	Preparing for the Future When You Cannot Predict the Future
2015-05-07	Birch Family Services	Acceptance Speech: Scientific Achievement Award	New York City	Children Respond to Technology, to Self-Guided Instruction, and To Our Love
2015-04-23	Google	**Keynote**: MedTech Boston – Innovation Showcase	Cambridge, MA USA	Autism and Google Glass – From Potential to Reality
2015-03-23	Harvard – Lurie Center	Clinical Talk Series	Lexington, MA USA	Unlocking Autism, Empowering the Brain: Brain Science-Driven Software to Foster Practical Life Skills and Assess Progress Numerically
2015-03-14	Startup Leadership Program	Demo and Pitch Day	Boston, MA	Unlocking Autism, Empowering the Brain
2015-03-12	Google	**Keynote**: Autism Speaks – Pitch Playground	Cambridge, MA USA	Thinking Big – About Autism and Technology
2015-03-10	Autism Speaks	Autism Investors Conference	Boston, MA	The State of Autism and Technology
2015-02-12	Hacker Dojo	What's New in Wearable Technology	Mountain View, CA USA	Looking Through Glass – The Future Is Bright for Autism
2015-02-12	Google	World Accessibility Summit	Mountain View, CA USA	Autism and Google Glass – Assessment and Intervention
2015-01-11	Cambridge Innovation Center	Technology Showcase and Private Beta	Cambridge, MA USA	How Google Glass Can Help Your Child With Autism
2014-12-31	Renaissance Weekend	Morning Seminar	Charleston, SC USA	Autism and Google Glass – Assessment and Intervention
2014-12-08	Boston Neuroscience and Psychiatry Group	Monthly Meeting	Newton, MA USA	Autism and Google Glass – Assessment and Intervention
2014-11-21	Williams College	Colloquium: Computer Science *and* Neuroscience Departments (joint session)	Williamstown, MA USA	Autism and Google Glass – Assessment and Intervention
2014-11-14	First Pacific Leadership Academy (Philippines)	Executive Talks	Manila, Philippines	The Era of Brain Technologies (a four-hour solo talk on stage)
2014-10-16	Google	Special Colloquium for the Google Glass Engineering Team	Mountain View, CA USA	Autism and Google Glass – Unlocking the Power of the Brain
2014-10-16	Google	Special Colloquium for the Google Special Needs Network	Mountain View, CA USA	Autism and Google Glass – Unlocking the Power of the Brain
2014-09-25	United Nations / Google	Keynote: United Nations World Focus on Autism	New York City	Autism and Google Glass – Unlocking the Power of the Brain
2014-06-17	Google	Glass Speaker Series	New York City	Autism and Google Glass
2014-02-25	Google	GlassNYC Collaborative	New York City	Your Brain on Glass

ACADEMIC CONFERENCE PAPERS • AS A POST-DOCTORAL SCHOLAR OR FELLOW (2008-2012)

Sahin, N.T., **How Might a Large Brain Coordinate Large Tasks?** Oral presentation. *Computational and Systems Neuroscience (COSYNE) annual conference*, 2011: Snowbird, Utah. [*Invitational symposium on Large-Scale Brain Dynamics.*]

Sahin, N.T., **From Cells to Psycholinguistics – It's About Time!** Oral presentation. *Human Brain Mapping annual conference*, 2010: Barcelona, Spain. [*Chair of Symposium Session.*]

Sahin, N.T., Pinker, S., Thesen, T., Cash, S., Devinsky, O., Kuzniecky, R., Doyle, W., and Halgren, E., **Language-Related Cortex Shows Three Physiologically and Functionally Distinct Waves from Visual to Motor Areas.** Poster number 1591 M&T-AM. *Human Brain Mapping*, 2010: Barcelona, Spain.

Sahin, N.T., Pinker, S., Thesen, T., Cash, S., Devinsky, O., Kuzniecky, R., Doyle, W., and Halgren, E., **Intra-cranial electrophysiology (ICE) of language: chronicling spatiotemporal stages and connectivity from visual input to motor output.** Poster number 113. *Neurobiology of Language annual conference*, 2010: Rancho Bernardo, CA, USA.

Sahin, N.T., Pinker, S., Thesen, T., Cash, S., Devinsky, O., Kuzniecky, R., Doyle, W., and Halgren, E., **Intra-cranial electrophysiology (ICE) of language: chronicling spatiotemporal stages and connectivity from visual input to motor output.** *Society for Neuroscience*, 2010: San Diego, CA.

Sahin, N.T., Pinker, S., Thesen, T., Cash, S., Devinsky, O., Kuzniecky, R., Doyle, W., and Halgren, E., **Tracking neuronal activation and information from visual input to linguistic output - combined intracranial recordings and fMRI during reading and speaking.** Poster number 697 M-AM. *Human Brain Mapping*, 2008: Melbourne, Australia. [*Abstract rated in top 50 (of 2000) and invited to be featured in the highlights presentation at the closing ceremony of the conference.*]

Sahin, N.T., Pinker, S., Cash, S., Schomer, D., and Halgren, E., **Neuronal populations in Broca's area process grammar versus articulation at separate times: convergent evidence from human intracranial recordings and fMRI.** Poster number 698 M-PM. *Human Brain Mapping*, 2008: Melbourne, Australia.

ACADEMIC CONFERENCE PAPERS • AS A GRADUATE STUDENT (2001-2007)

Sahin, N.T., Pinker, S., Ulbert, I., Dehghani, N., Papavassiliou, E., Schomer, D., and Halgren, E., **Depth electrode recordings in Broca's area reveal 3-stage process for grammatical inflection.** Poster number 155 T-AM. [Citation: *NeuroImage* 36(S1): S63]. *Human Brain Mapping*, 2007: Chicago, IL. [*Won competitive travel fellowship.*]

Sahin, N.T., Pinker, S., Ulbert, I., Dehghani, N., Papavassiliou, E., Schomer, D., and Halgren, E., **Multimodal and multi-scale: convergent human single-unit, LFP, and fMRI characterization of neuronal activity in cingulate/SMA during language production.** Poster number 154 T-PM. [Citation: *NeuroImage* 36(S1): S75]. *Human Brain Mapping*, 2007: Chicago, IL.

Sahin, N.T., Pinker, S., Cash, S., Meng, N., Papavassiliou, E., Schomer, D., and Halgren, E., **Inflecting nouns and verbs may be more similar than different: evidence from fMRI and intracranial electrophysiology.** Poster number 156 T-PM. [Citation: *NeuroImage* 36(S1): S75]. *Human Brain Mapping*, 2007: Chicago, IL. [*Abstract rated in top 65 (of 2200) and invited to be featured in the highlights presentation at the closing ceremony of the conference.*]

Sahin, N.T., Pinker, S., Cash, S., Thesen, T., Wang, C., Devinsky, O., Kuzniecky, R., Doyle, W., and Halgren, E., **Communication between Broca's and Wernicke's areas detected with intracranial electrophysiology in awake humans.** Poster number 152 T-PM. [Citation: *NeuroImage* 36(S1): S74]. *Human Brain Mapping*, 2007: Chicago, IL.

Sahin, N.T., Pinker, S., and Halgren, E., **Beware the baseline: right-hemisphere activation restricted to the baseline condition of a language paradigm challenges this common task and may suggest a default-mode pathway.** Poster number 153 T-AM. [Citation: *NeuroImage* 36(S1): S63]. *Human Brain Mapping*, 2007: Chicago, IL.

Sahin, N.T., Pinker, S., Wang, C., Devinsky, O., Kuzniecky, R., Doyle, W., and Halgren, E., **Intracranial electrophysiology and the Wernicke-Geschwind model.** Poster number M-260. [Citation: *NeuroImage* 31(S1): S56]. *Human Brain Mapping, 2006*: Florence, Italy.

Sahin, N.T., Pinker, S., Cash, S., Wang, C., Devinsky, O., Kuzniecky, R., Doyle, W., and Halgren, E., **Coherent activity in Broca's and Wernicke's areas in delta and theta bands during noun and verb inflection, as revealed through human intracranial EEG.** Oral presentation (no parallel sessions). *10th International Conference on Cognitive and Neural Systems*, 2006: Boston, MA. [*Won a competitive student fellowship.*]

Sahin, N.T., Pinker, S., Ulbert, I., Dehghani, N., Wang, C., Papavassiliou, E., Schomer, D., and Halgren, E., **Single unit recordings in human anterior cingulate during a language task.** Poster number 81. 30th Annual Massachusetts General Hospital Research Symposium, 2006: Boston, MA.

Sahin, N.T., Pinker, S., Cash, S., Wang, C., Devinsky, O., Kuzniecky, R., Doyle, W., and Halgren, E., **Coherent Activity in Broca's and Wernicke's areas in delta and theta bands during noun and verb inflection, as revealed through human intracranial EEG.** Oral presentation (no parallel). *Architecture of Language Conference*, 2006: Pisa, Italy.

Sahin, N.T., Pinker, S., Dale, A., Ulbert, I., Schomer, D., and Halgren, E., **Human in-vivo electrophysiology of grammar – bridging computational, systems and cognitive approaches.** Program number 32 (no parallel sessions). *Computational and Systems Neuroscience* (COSYNE), 2005: Salt Lake City, UT. [*Invited by Nature Neuroscience editor-in-chief to write a paper for the journal (Research Article length), based on this talk.*]

Sahin, N.T., Pinker, S., Ulbert, I., Dehghani, N., Wang, C., Papavassiliou, E., Schomer, D., and Halgren, E., **Single unit recordings in human anterior cingulate during a language task.** Program number 771.4, poster number 0014. *Society for Neuroscience*, 2005: Washington, DC.

Sahin, N.T., Halgren, E., Schomer, D., Wu, J., Dale, A., and Pinker, S., **Human *in-vivo* electrophysiology and fMRI evidence for abstract grammatical processing in Broca's area.** *Fourth Annual MIT-RIKEN Neuroscience Symposium – New Frontiers in Neuroscience*, 2004: Cambridge, MA.

Sahin, N.T., Halgren, E., Ulbert, I., Dale, A., Schomer, D., Wu, J., and Pinker, S., **Abstract grammatical processing in Broca's area: evidence from fMRI and intra-cranial electrophysiology.** Program number MO 144. [Citation: *NeuroImage*, 22(S1): e232-e234]. *Human Brain Mapping*, 2004: Budapest, Hungary. [*Won competitive travel fellowship.*]

Sahin, N.T., Halgren, E., Schomer, D., Wu, J., Dale, A., and Pinker, S., **Convergent in-vivo electrophysiology and fMRI in Broca's area: profiling abstract grammar computation.** Program number 595.6. *Society for Neuroscience*, 2004: San Diego, CA.

Sahin, N.T., Halgren, E., Dale, A., Busa, E., and Pinker, S., **Inflectional morphology of nouns and verbs shows fMRI activation of Broca's and related areas.** Program number 1354. [Citation: *NeuroImage* 19(2) Suppl. 1: e2684-e2688]. *Human Brain Mapping*, 2003: New York City. [*Won competitive travel fellowship.*]

Sahin, N.T., Halgren, E., Ulbert, I., Wang, C., Schomer, D., Wu, J., and Pinker, S., **Convergent event-related fMRI & depth electrophysiology in Broca's area during noun and verb grammatical processing.** Program number 770.2. *Society for Neuroscience*, 2003: New Orleans, LA. [*Won competitive travel award .*]

Sahin, N.T., Pinker, S., Greve, D., van der Kouwe, A., Dale, A., & Halgren, E., **Dissection of the components of inflectional morphology using event-related fMRI.** Program #189. *Cognitive Neuroscience Society*, 2003: New York City.

Makris, N., Sahin, N.T., Bates, J.W., Patti, M.R., Meyer, J.W., Caplan, D.N., Caviness, V.S., Jr., and Kennedy, D.N., **MRI-based volumetric analysis of anatomical consequences of stroke.** *Human Brain Mapping*, 2001: Brighton, UK.

Makris, N., Sahin, N.T., Bates, J.W., Patti, M.R., Meyer, J.W., Caplan, D.N., Caviness, V.S., Jr., and Kennedy, D.N., **MRI-based volumetric analysis of subcortical consequences of stroke.** *Society for Neuroscience*, 2000: New Orleans.

Sahin, N.T., Makris, N., Bates, J.F., Patti, M.R., Meyer, J.W., Kennedy, D.N., Caplan, D.N., and Caviness, V.S., Jr., **MRI-based topographic and quantitative mapping of stroke.** Poster number 692. [Citation: *NeuroImage*, 7(4): S692]. *Human Brain Mapping*, 1998: Montreal, Canada.

AWARDS & HONORS

2015	Scientific Achievement Award. Awarded at the annual gala by Birch Family Services (New York area collection of schools, residences and programs that has attended to 17,000 children with autism over the years).
2015	Small Business Innovation Research grant (SBIR DHP13-011). Phase II: $1,000,000 direct cost "*Visual Evoked Potentials for Traumatic Brain Injury Diagnosis*." (Google Glass as a TBI detector). Principle Investigator.
2014	Small Business Innovation Research grant (OSD14.1-AU1). Phase I: $150,000 direct cost. Topic: Biometrics for Human-machine Team Feedback in Autonomous Systems. Project Name: "**CLARITY** (**C**ognition **L**istener for **A**utonomous and **R**obotic **I**ntegrated-**T**eam efficienc**Y**)." Principle Investigator.
2013	Small Business Innovation Research grant (SBIR DHP13-011). Phase I: $150,000 direct cost "*Visual Evoked Potentials for Traumatic Brain Injury Diagnosis*." Principle Investigator.
2010-2012	Institute for Neural Computation - Cross-Departmental NIH Postdoctoral Training Grant. "*Spatiotemporal dynamics of neural computation during natural speech*." Fellow in Cognitive Neuroscience – Salk Institute and UC San Diego. $90,000 Stipend over 2 years (renewable).
2010	Chair & Organizer of Symposium Session - Human Brain Mapping annual meeting (Barcelona, June 2010). "*Human Intra-Cranial Electrophysiology (ICE) in Mind/Brain Mapping – Linking Levels of Analysis from Cells to Psychology*". Annual conference attendance ~2000. Symposium attendance ~500.
2007	Harvard PhD Dissertation Prize. "*The Richard J. Herrnstein Prize: to the best dissertation – that exhibits the excellent scholarship, originality and breadth of thought, and a commitment to intellectual independence that are in keeping with the terms of the prize and the memory of Professor Herrnstein*". Included a $5000 award.
2004-2007	NRSA Institutional Training Grant, NIMH (T32 MH070328). "Graduate Training in Psychology and Neuroimaging." Multi-center multidisciplinary grant linking Harvard Psychology Dept and the MGH Martinos Center for Biomedical Imaging. $68,000 Partial Stipend + $72,000 Tuition coverage, over 4 years.
2004-2006	Small Business Innovation Research (SBIR) grant. Phase II: $730,000 + $50,000 direct cost over 2 years (max awarded) "*SENSORS: System for Evaluating Neurological Stress with Objective & Remote Sensors*" Principle Investigator. A project for the Army to create a system to predict critical cognitive stress in soldiers.
2004	Graduate Student Award. Mind/Brain/Behavior (MBB) interfaculty initiative at Harvard: $5,000 stipend (max awarded), for interdisciplinary study of the neural processing of abstract Grammar beyond language.
2004	Fellowship. Dartmouth Summer Workshop in fMRI Informatics, fMRI Data Center. Six-day session.
2004	Sackler Scholarship in Psychobiology. $5,000 stipend (max awarded) from the Dr. Mortimer and Theresa Sackler Foundation. For advanced research in psychobiology with clinical relevance.
2003	Small Business Innovation Research grant (SBIR A03-063). Phase I: $70,000 direct cost (max awarded) "*SENSORS: System for Evaluating Neurological Stress w Objective & Remote Sensors*." Principle Inv. Won on 1st attempt.
2003	Elsie Hopestill Stimson grant for graduate research (Harvard). $3,500 stipend (max awarded). "In-vivo human multi-unit activity (MUA) electrophysiology and intracranial electroencephalography (iEEG) to investigate tight neural coupling with dissociable processes in human Language processing."
2003–2008	Graduate Student Fellowship, Harvard Dept of Psychology. $60,000 Stipend over 3 years, full Tuition for 5 years.
2003	Walle Nauta Award for Continuing Dedication to Teaching. MIT.
2002–	Student Representative to Faculty, Cognitive Neuroscience Group, MGH Martinos Center
2001–	Student and Post-Doc Representative to the Faculty, MGH Martinos Center. Attend faculty meetings.
2001	Angus MacDonald Award for Excellence in Undergraduate Teaching. MIT.
2000–2003	Graduate Student Fellowship, MIT Dept of Brain & Cognitive Sciences. $60,000 (+ full Tuition) over 3 years.
1998	Class of 1960 Scholar. Williams College, Neuroscience Department.
1996	Class of 1960 Scholar. Williams College, Biology Department.

INVITED TALKS (AS A GRADUATE STUDENT OR POST-DOC)

Date	Organization	Series / Department	City	Title
2011-11-29	Salpêtrière Hospital	150th Anniversary of Broca's Seminal Paper	Paris	Multiplexing in time, frequency, & phase in traditional Broca's area: why the story will never be simple.
2011-10-??	Singularity University	Exponential Technologies Executive Program	Moffett Field, CA	What Brain-Computer Interfaces (BCI) Will Do For You Within Your Lifetime
2011-07-22	Harvard University	Randy Buckner Lab	Cambridge	Large-Scale Networks and Synchrony in Cognition.
2011-05-14	Institute for Neural Computation / Kavli	INC / Kavli Annual Retreat	San Diego	How might a large brain tackle large tasks?
2011-04-22	Stanford University	Josef Parvizi Lab	Palo Alto, CA	How might a large brain coordinate large tasks?
2011-03-17	UC San Diego	Brain Talks Seminar	San Diego	How might a large brain coordinate large tasks, like Language?
2010-11-29	Salk Institute	Tatyana Sharpee Lab	San Diego	Investigating the brain basis of human language as a path to uncover organizing principles of the brain's own language.
2010-11-26	UC San Diego	Center for Research in Language talk series	San Diego	Seeking Organizing Principles for Brain Computation of Language and Cognition
2010-05-25	Max Planck – Ernst Strüngmann Institute	Center for Cognitive Neuroimaging	Frankfurt	Intra-cranial electrophysiology (ICE) of language: chronicling spatiotemporal stages and connectivity from visual input to motor output
2010-05-24	San Raffaele University	Brain Mapping	Milan	Neurophysiology of human language: spatiotemporal stages and connectivity revealed with intra-cranial electrophysiology (ICE)
2010-05-21	Donders Institute for Brain, Cognition and Behaviour	Centre for Cognitive Neuroimaging	Nijmegen, Netherlands	Electrophysiology of language: chronicling spatiotemporal stages and connectivity from visual input to motor output using intra-cranial electrophysiology (ICE)
2010-05-20	University Medical Center – Utrecht	Rudolf Magnus Institute	Utrecht, Netherlands	Electrophysiology of language: chronicling spatiotemporal stages and connectivity from visual input to motor output using intra-cranial electrophysiology (ICE)
2010-05-19	Max Planck Institute for Human Cognitive and Brain Sciences	Dept. of Neuropsychology – Language Series	Leipzig, Germany	Intra-cranial electrophysiology (ICE) of language: chronicling spatiotemporal stages and connectivity from visual input to motor output
2010-05-18	Max Planck Institute for Biological Cybernetics	Institute Weekly Colloquium	Tübingen, Germany	Computational stages and cortical connectivity during language production, revealed with intra-cranial electrophysiology (ICE)
2010-05-04	University of California San Diego	Cognitive Neuroscience Brownbag Lunch	La Jolla, CA	Sequences of computation and cortical connectivity during language production, revealed with intra-cranial electrophysiology (ICE)
2010-05-01	Kavli Institute / Inst. for Neural Computing	Neurosciences Spring Retreat	La Jolla, CA	Sequential Processing in Broca's Area of Word Identity, Structure, and Sound: Revealed with Intra-cranial Electrophysiology (ICE)
2009-11-09	Stanford University	Department of Psychology	Palo Alto, CA	From cells to psycholinguistics: Language-related patterns from single-unit to system level
2009-11-04	Princeton University	Neuroscience and Psychology Depts.	Princeton, NJ	Multitasking in Broca's area and network-wide connectivity from V1 to Broca's
2009-11-04	Yale University	Neurosurgery Grand Rounds satellite	New Haven, CT	Multitasking in Broca's area and network-wide dynamics from V1 to Broca's - An end to "Broca's speaks and Wernicke's listens"
2009-11-03	New York University	Comprehensive Epilepsy Center	New York City	Sequential processing within and connectivity among language-related neuronal populations
2009-02-02	Univ. of California, Berkeley	Robert Knight Laboratory	Berkeley, CA	Mapping the brain's language: modular activity within and connectivity among language-related neuronal populations
2008-01-28	Univ. of California, San Diego	Marta Kutas Laboratory	San Diego, CA	Neural circuits for reading, inflecting and producing words: spatiotemporal mapping with human

				intracranial electrophysiology and fMRI
2006-06-06	RWTH Aachen University	Psychiatry Neuroimaging Series	Aachen	fMRI and human intracranial EEG investigations of noun & verb processing
2006-05-31	University of Bonn	Medical Psychology Research Lectures	Bonn	Chronicling connectivity between Broca's & Wernicke's areas via intracranial recordings and fMRI
2006-04-13	Harvard	Cognition, Brain & Behavior Seminar	Cambridge	Neuronal circuits for sequencing stored linguistic elements
2005-06-03	Danish Research Center for Magnetic Resonance	MRI Research Seminar	Copenhagen	Speaking in the brain's language: from single units to fMRI blobs
2005-06-02	Karolinska Institute	Cognitive Neuroscience fMRI	Stockholm	Speaking in the brain's language: from single units to fMRI blobs
2004-10-13	Georgetown University	Brain & Language Lab	Washington, DC	Noun & verb morphosyntax in Broca's region: convergent fMRI and in-vivo electrophysiology
2004-06-08	San Raffaele University	Brain Mapping	Milan	Grammar in Broca's region: fMRI and in-vivo electrophysiology
2004-05-06	Harvard	Cognition, Brain & Behavior Seminar	Cambridge	Grammar and Broca's region: in-vivo electro-physiology and fMRI studies
2004-05-03	MIT	Brain Lunch Seminar	Cambridge	In-vivo electrophysiology and fMRI convergence in Broca's region for human language grammar
2004-01-07	UCLA Medical School	Brain Mapping	Los Angeles	Convergent event-related fMRI & depth electrophysiology in Broca's area during noun & verb grammatical processing
2004-01-07	University of Southern California	Visual Cognition	Los Angeles	Convergent event-related fMRI & depth electrophysiology in Broca's area during noun & verb grammatical processing
2004-01-06	Massachusetts General Hospital	Neuropsychiatry Seminar	Charlestown	Convergent event-related fMRI & depth electrophysiology in Broca's area during noun & verb grammatical processing
2002-11-19	MIT	Cognitive Lunch Seminar	Cambridge	Inflectional processing of nouns & verbs in the brain
2002-09-17	Cambridge University	Cambridge-MIT Institute Morphology Workshop	Cambridge (UK)	Inflectional processing of nouns & verbs in the brain

TEACHING EXPERIENCE

2014 MIT. Instructor: "Real-World Brain Data Meet Real-World Computational Tools"
Taught MIT students from two different departments [computer science (course VI) and neuroscience (course IX)], in a multi-disciplinary and project-based course that required student teams to ask elegant scientific questions across disciplines, and proposed tractable solutions and hypothesized results and conclusions.

2004 Harvard University. Head Teaching Fellow: "The Human Mind" (Prof. Steven Pinker)
Managed 10 teaching fellows (20 sections). Managed all course logistics, policies, and teaching team. New course in Harvard's undergraduate Core curriculum.

2003 MIT. Teaching Assistant *and* Oral Presentation Coach. "Brain Laboratory Methods" (Prof. Jim DiCarlo)
Walle Nauta Award for Continuing Dedication to Teaching (based on student and faculty evaluations).

2002 MIT. Teaching Assistant. "Introduction to Psychology" (Prof. Steven Pinker)
Angus MacDonald Award for Excellence in Undergraduate Teaching (student and faculty evaluations).

1997 Williams College. Teaching Assistant. "Biology 102 – The Organism"
Appointed "Class of 1960 Scholar" partly in recognition of teaching performance (101 + 102).

1996 Williams College. Teaching Assistant. "Biology 101 – The Cell"

AD-HOC REVIEWING

Brain
Annals of Neurology
NeuroImage

Journal of Neurolinguistics
Brain and Language
Lingua

PROFESSIONAL COURSES

2005 "Negotiation" Harvard Program on Negotiation, Harvard Law School. (13-week intensive course, 10 hrs/wk)
2004 "Summer Workshop in fMRI Informatics" Dartmouth fMRI Data Center. (3-day course in 6-day session)
2003 "Combining fMRI & EEG" Human Brain Mapping annual meeting. (1-day symposium)
2003 "fMRI Course" Human Brain Mapping meeting. (1-day course)
2001 "fMRI: Data Acquisition and Analysis" MIT: HST 583. (full-semester 12-unit graduate course)
2000 "Visiting Fellows Program in fMRI" MGH Martinos Center. (5-day course)

SOCIETY MEMBERSHIPS

2002– Sigma Xi
2000–2005 Science's *Next Wave*, AAAS (MIT & MGH Campus Representative)
2000– Society for Neuroscience
2000– Cognitive Neuroscience Society
1998– Organization for Human Brain Mapping
1998– Renaissance Weekend (www.renaissanceweekend.org)
1997– Gargoyle Society (Williams College honor and service society)
1997– American Association for the Advancement of Science (AAAS)

LABORATORY SKILLS

- Intra-cranial Electrophysiology (ICE) – expert in acquisition, analysis, and interpretation of direct *in-vivo* recordings from the living human brain. Includes single-cell recordings as well as multi-unit activity and local field potentials.
- fMRI – expert in experiment design, acquisition, analysis, data visualization, and interpretation.
- Other current methods: scalp EEG, MEG, and behavioral testing.
- Previous methods: small animal stereotaxic surgery & care, immunohistochemistry, MRI and light microscopy, HRP retrograde labeling, BrdU staining.

COMPUTING SKILLS

Skilled in packages and protocols for scientific data analysis, image processing, databasing, web, and remote computing.

- *Technical Packages*: FreeSurfer and FS-FAST (MGH), MATLAB, Neuroscan (Compumedics), MRIcro, DataView, Presentation (Neurobehavioral Systems), MRI embedded control software (GE & Siemens).
- *Coding & Web*: MATLAB, Android/Java, Tcl, advanced SQL, Perl, JavaScript, HTML, Wordpress, advanced Linux shell scripting (e.g. 1000-line programs to support fMRI data analysis packages).
- *Hardware*: 3D printing, rapid prototyping, basic circuit layout, build and maintain custom computers for lab and home.
- *OS/Shell experience*: Linux, Windows, Unix, DOS, MacOS, OS/2, CP/M, VMS.
- *Graphics/Productivity*: Expert User of most standards, e.g. MS Office and Adobe Creative Suite.
- *Database*: Mission-critical Oracle and Sybase systems: programmed, administered, and extensively queried; in corporate and research environment. Implemented custom databases to combine linguistic corpora, generate experimental stimuli automatically, support Intracranial Electrophysiology and fMRI data analysis, and manage and pay experimental subjects.

CORPORATE EMPLOYMENT

2002–2005 **TIAX, LLC**. Senior Technologist. Specialist in medical imaging technologies. Principle Investigator (Phase I, II), SBIR project for Department of Defense (see above, in Awards). Cambridge, MA.

1999–2000 **Lucent Technologies**. Project Manager and Technical On-Site Consultant. Member, Bell Labs Technical Staff. Managed 5-person project team on client site in Dublin. Member of project teams on site in Dublin and Madrid. Programmed large-scale mission-critical Oracle databases. London, UK.

1998–1999 **Kenan Systems**. Software Project Consultant, Telecommunications Software. Programmed Oracle and Sybase databases to translate business needs of clients. Clients included major telecommunications companies. The software products were systems to manage billing and customer care. Trained in Unix, RDBMS database, C; and client-interface and managerial skills. Cambridge, MA.

CORPORATE BOARDS

2014– **Edgewise Ed, LLC.** Educational Technology Company.

2008–2011 **BodySure, Inc.** Biomedical imaging startup.

2003–2007 **Fitness Forward**. Non-profit aimed to promote healthy lifestyle and reduce childhood obesity. Science, Research, and Technology Translation Officer, Operating Advisory Board.

REFERENCES

Arshya Vahabzadeh, MD	
Steven Pinker, PhD	M.S. and Ph.D. advisor
Anthony Sossong, MD	Business Partner
Eric Halgren, PhD	Post-doctoral advisor
Sydney S. Cash, MD, PhD	Mentor and Collaborator
Verne S. Caviness, Jr., MD, D.Phil	B.A. thesis co-advisor

PERSONAL

- Traveled in 45+ countries.
- Six patents pending. Two trademarks issued.
- Developed software for neuroimaging data analysis and visualization during graduate studies.
- Rowed at international level (competed at Henley for my Oxford college); and at Williams, MIT, & Harvard.
- Photography.
- Intermediate French and basic Turkish.