

# Daniel Franc, MD, PhD

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## EDUCATION

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*UCLA Medical Center*

**Resident in Neurology**

**2011-2014**

*University of Minnesota*

**M.D. in Medical Scientist Training Program**

**2010**

- Independent research in tractography algorithms applied to brain tumors

*University of Minnesota*

**Ph.D., Graduate Program in Neuroscience**

**2008**

- Dissertation: "Investigations in magnetic resonance diffusion tensor imaging applied to clinical and research medicine"
- Graduate work with Dr. Kelvin O Lim at the Center for Magnetic Resonance Research at the University of Minnesota, Graduate Program in Neuroscience
- Pre-doctoral fellow in NIH-funded Neuro-physical Computational Sciences training grant
- Focus on MRI research of white matter diseases and neuroscience

*University of Iowa, Iowa City, Iowa*

**B.A. Honors in International Health Studies**

**1998**

- BA in International Health, International Studies and Russian
  - Research work in South Russia
  - Honors include University Scholarship and Dean's List
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## ONGOING PROJECTS

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### **Mobile device development for patients with chronic neurologic disease**

- Working with Android device developer Matthew Joynes in Thousand Oaks and colleagues China to construct a prototype tablet for tracking patients with chronic neurologic disease at home and in nursing home settings

### **Prehospital EEG application and device development**

- Working with Dr Steven Cramer of UC Irvine to test dry EEG for ambulance use to diagnose hemispheric stroke and status epilepticus acutely
- Based on initial results will develop standalone dry electrode system

### **Application of DTI for acute stroke**

- Currently recruiting subjects who present to UCLA medical center with acute stroke
- Correlating functional measures with DTI, ASL, and other traditional MRI markers of acute stroke
- Study being performed with Dr. David Liebeskind and Dr. Jeff Saver of UCLA

### **Natural language processing method development for stroke patients**

- Project in conjunction with Dr. Eric Cheng of the Department of Neurology and Dr. Mahammed Mahboub, CIO of UCLA Health Sciences
  - Development of automated language processing algorithms for identifying patients with acute stroke symptoms and to assess stroke outcome measures
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## PUBLICATIONS

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- 'How Do Spatial and Angular Resolution Affect Brain Connectivity Maps from Diffusion MRI?' Liang Zhan, Daniel Franc, Vishal Patel, Neda Jahanshad, Yan Jin, Bryon Mueller, Matt Bernstein, Bret Borowski, Clifford Jack Jr, Arthur Toga, Kelvin Lim, Paul Thompson. ISBI 2012
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- Tract-specific uncertainty in simulated and in vivo magnetic resonance diffusion tensor images. Franc DT, Lim KO. Upcoming submission to Magnetic Resonance in Medicine.
  - High connectivity between reduced cortical thickness and disrupted white matter tracts in long-standing type 1 diabetes. Franc DT, Kodl CT, Mueller BA, Muetzel RL, Lim KO, Seaquist ER. *Diabetes*. 2011 Jan;60(1):315-9. Epub 2010 Oct 27.
  - Cerebral and muscle MRI abnormalities in myotonic dystrophy. Franc DT, Muetzel RL, Robinson PR, Rodriguez CP, Dalton JC, Naughton CE, Mueller BA, Wozniak JR, Lim KO, Day JW. *Neuromuscul Disord*. 2012 Jan 28.
  - Quantification of uncertainty resulting from DTI tractography algorithm instability. Franc DT, Meutzel R, Mueller BA, Luciana M, Lim KO. Upcoming submission to NeuroImage.
  - Diffusion tensor imaging identifies deficits in white matter microstructure in subjects with type 1 diabetes that correlate with reduced neurocognitive function. Kodl CT, Franc DT, Rao JP, Anderson FS, Thomas W, Mueller BA, Lim KO, Seaquist ER. *Diabetes*. 2008 Nov;57(11):3083-9. Epub 2008 Aug 11.
  - Brain macrostructural and microstructural abnormalities in cocaine dependence. Lim KO, Wozniak JR, Mueller BA, Franc DT, Specker SM, Rodriguez CP, Silverman AB, Rotrosen JP. *Drug Alcohol Depend*. 2007 Sep 2
  - Modification of the Woodruff-Stamper assay demonstrates binding of *Toxoplasma gondii* tachyzoites to retinal vascular endothelium. Chipps TJ, Streeter PR, Franc DT, Neumeier K, Planck SR, Rosenbaum JT, Smith JR. *J Immunol Methods*. 2006 May 30;312(1-2):209-13.
  - Susceptibility of Retinal Vascular Endothelium to Infection with *Toxoplasma gondii* Tachyzoites. Smith JR, Franc DT, Carter NS, Zamora D, Planck SR, Rosenbaum JT. *Invest Ophthalmol Vis Sci*. 2004 Apr;45(4):1157-61
  - Susceptibility to endotoxin induced uveitis is not reduced in mice deficient in BLT1, the high affinity leukotriene B4 receptor. Smith JR, Subbarao K, Franc DT, Haribabu B, Rosenbaum JT. *Br J Ophthalmol*. 2004 Feb;88(2):273-5
  - Preferential Susceptibility of Retinal Vascular Endothelium to Infection with *Toxoplasma gondii* Tachyzoites. Oral presentation session, Association for Research in Vision and Ophthalmology international meeting, 2003.
  - Mobility Needs of Elder Women. US Department of Transportation paper authored with Dr. Robert Wallace, 1999.
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#### SELECTED ABSTRACTS

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- Variability in brain structural connectivity maps due to voxel size. Liang Zhan, Neda Jahanshad, Daniel Franc, Vishal Patel, Christophe Lenglet, Bryon A. Mueller, Matt A. Bernstein, Bret J. Borowski, Clifford R. Jack Jr, Kelvin O. Lim, and Paul M. Thompson. Abstract: Annual Meeting of the Organization for Human Brain Mapping (2012).
- Uncertainty of apparent white matter fiber tract size in DTI fiber tracking and region of interest analyses: A multi-resolution study. Daniel Franc, Christophe Lenglet, Gloria Haro, Paul Thompson, Bryon Mueller, Guillermo Sapiro, Kelvin O Lim. Abstract: 14th Annual Meeting of the Organization for Human Brain Mapping (2008).
- Simulations of DTI voxel size resolution on fiber tract measurements DT Franc, and KO Lim. Abstract: 16th Scientific Meeting International Society for Magnetic Resonance in Medicine (ISMRM) (2008).
- DTI reveals widespread white matter abnormalities in Myotonic Dystrophy Type 1 and Type 2 populations. DT Franc, B Mueller, J Dalton, C Naughton, JW Day, and KO Lim. Abstract: 16th Scientific Meeting International Society for Magnetic Resonance in Medicine (ISMRM) (2008).
- Cortical thickness is correlated with tract-specific fractional anisotropy in Type I Diabetes. DT Franc, C Kodl, B Mueller, R Muetzel, E Seaquist, and KO Lim. Abstract: 16th Scientific Meeting International Society for Magnetic Resonance in Medicine (ISMRM) (2008).
- Microstructural abnormalities correlated with cognitive dysfunction in longstanding cocaine abuse. Daniel T Franc, Jeffrey R Wozniak, Bryon A Mueller, Sheila M Specker, Craig P Rodriguez, Amy B

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Silverman, John P Rotrosen, Kelvin O Lim. Abstract: 15th Scientific Meeting International Society for Magnetic Resonance in Medicine (ISMRM) (2007).

- Cortical thickness is correlated with tract-specific fractional anisotropy in Type I Diabetes. DT Franc, C Kodl, B Mueller, R Muetzel, E Seaquist, and KO Lim. Abstract: 16th Scientific Meeting International Society for Magnetic Resonance in Medicine (ISMRM) (2008).

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#### AWARDS

**2014 UCLA Department of Neurology Resident Research Abstract Award**

**2008 Steer Family Award in Diabetes Research**, presented by the Minnesota Medical Foundation

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#### SELECTED RESEARCH AND WORK EXPERIENCE

*University of Minnesota School of Medicine*

**Lecturer, Neuropsychology Training Grant in Division of Pediatric Clinical Neuroscience** **2007-2008**

- Gave lectures regarding neuroradiology, structural brain pathology in pediatrics and current neuroimaging research methodologies

*University of Minnesota School of Medicine*

**Neuroanatomy Teaching Assistant** **2006-2007**

- Teaching assistant for several sections of medical student neuroanatomy

*Minnesota Medical Association*

**Member, Board of Trustees** **2006-2007**

- Participated in regular board meetings to guide this organization
- Attended several state and national medical association meeting as board member

*Oregon Health and Science University*

**Research Assistant** **2001-2003**

- Conducted research culminating in several papers and international conference presentations

*Clackamas County Health Department*

**Researcher, Program Assistant** **2001-2003**

- Worked on needs assessment for an HIV/AIDS program in this urban county

*State of Minnesota Health Department, Minneapolis*

**Project Assistant** **1998-1999**

- Worked on the Community Integrated Service System project and the employee health assistance program in the Division of Family Health

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#### INTERESTS AND ACTIVITIES

- I have lived in Denmark, Sicily, Russia and Brazil doing health research as well as non-health related work
- Jazz music performance on saxophone

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#### LANGUAGES

- Proficiency in Danish, Russian, Spanish and French
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