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| Professional Preparation | Bard College B. A., Computer Science and Photography | Annandale-on-Hudson, NY May 2012 |
| Research Experience | Wadsworth Center, New York State Dept. of Health Program Research Specialist I Principal investigator: Haydeh Payami | Albany, NY June 2012 – Present |

- **Parkinson's disease and the human leukocyte antigen (HLA) region:**
Examination of non-coding single-nucleotide polymorphisms (SNPs) in the *HLA*-region on Chromosome 6 associated with Parkinson's disease (PD), to determine whether the non-coding SNPs were tagging *HLA*-alleles or vice-versa.
- **Genetic basis of the protective effect of caffeine against Parkinson's disease:**
Genome-wide studies of the interaction between caffeine and variations in DNA structure and levels of gene activity in relation to the development of Parkinsonism in both *Drosophila* and humans.
- **Genome-wide association (GWAS) study controlling for Alpha-Synuclein reveals a novel association:**
A study that confirms the existence of a second Parkinson's disease-associated signal in the region around Alpha-Synuclein, a gene on Chromosome 4, by using genome-wide association study conditioned for known Parkinson's disease loci.
- **Identification and replication of a novel susceptibility locus associated exclusively with sporadic Parkinson's disease:**
Investigation of whether additional disease genes could be identified by stratifying subjects by sporadic (non-familial) and familial Parkinson's disease.
- **Identification of novel genes for Parkinson's disease via genome-wide association (GWAS) and interaction studies of copy number variation (CNV) and single nucleotide polymorphisms:**
Genome-wide interaction studies of copy number variations and single nucleotide polymorphisms to explore if novel genes for Parkinson's disease can be identified.
- **Gut microbiome pilot study:**
Investigation of possible differences between the gut microbiome in Parkinson's disease patients and controls. Creation of a digital questionnaire used by recruiting sites to record phenotypic data about each subject.
- **Additional projects:**
 - 1) Explored a way to visualize the changes in statistical power, for each single-nucleotide polymorphism (SNP) loci genome-wide, resulting from a covariate or SNP being added to a liner regression analysis.
 - 2) Created a data mining algorithm which builds a set of connected single nucleotide polymorphism (SNP) loci by looking for large improvement in statistical power when a covariate or a SNP is added into a liner regression analysis.

Senior Thesis
Advisers: Keith J. O'Hara and Stephen Shore

Bard College
Academic Year 2012

- **Semi-Automated Creation of Cinemagraphs for the Exhibition Still Moving:**
An investigation into the creation of Cinemagraphs (a style of animated GIF) generated from an Xbox Kinect red, green, blue (RGB) and depth image stream.

Bard College Summer Research Institute
Research Assistant
Advisers: S. Rebecca Thomas and Sven Anderson

Annandale-on-Hudson
Summer 2011

- **WordNet-Based Lexical Simplification:**

An exploration of algorithms for the automatic generation of a limited-size lexicon from a document, such that the lexicon covers as much as possible of the semantic space of the original document.

Publications

Refereed articles:

Wissemann, W.T., Hill-Burns, E.M., Zabetian, C., Factor, S.A., Patsopoulos, N., Hoglund, B., Holcomb, C., Donahue, R., Thomson, G., Erlich, H., Payami, H. "Association of Parkinson disease with structural and regulatory variants in the *HLA* region." *AJHG: The American Journal of Human Genetics*, Volume 93, Issue 5, 7 November 2013, Pages 984-993.

Hill-Burns, E.M., **Wissemann, W.T.**, Hamza, T.H., Factor, S.A., Zabetian, C.P., Payami, H. "Identification of a novel Parkinson's disease locus via stratified genome-wide association study." In re-review at BMC Genomics.

Wissemann, William. "Accomplishing Big Things in Small Pieces." *This I Believe: Life Lessons*. Ed. Dan Gediman, Mary Jo Gediman, John Gregory. Hoboken, NJ: Wiley, 2011.

Refereed abstracts
selected for
platform
presentations:

Wissemann, W.T., Hill-Burns, E.M., Ganguly, P., Wolfgang, W.J., Zabetian, C., Factor, S.A., Payami, H. "Pharmacogenomics of PD: *MAPK10*, caffeine and *A2A*-receptor antagonists." *XX World Congress on Parkinson's disease and Related Disorders*. Geneva, Switzerland. December 2013. Manuscript in prep.

Hill-Burns, E.M., **Wissemann, W.T.**, Zabetian, C., Factor, S.A., Payami, H. "Conditional genome-wide association study, controlling for alpha-Synuclein (*SNCA*), reveals a novel association between Parkinson's disease (PD) and the *CCSER1* Gene." *International Conference on Alzheimer's and Parkinson's diseases (AD/PD)*. Florence, Italy. March 2013. Manuscript in prep.

Payami, H., Erlich, H., Hill-Burns, E.M., Patsopoulos, N., Hamza, T., **Wissemann, W.T.**, Holcomb, C., Zabetian, C., Factor, S.A., De Jager, P., de Bakker, P., Thomson, G. "A comparative study of next-generation-sequencing and imputation reveals evidence for association of sporadic Parkinson's disease with *HLA-DR2*, *HLA-DR4* and *HLA-DR11*." *International Conference on Alzheimer's and Parkinson's diseases (AD/PD)*. Florence, Italy. March 2013.

Refereed abstracts
selected for
poster:

Hill-Burns, E.M., Ganguly, P., **Wissemann, W.T.**, Wolfgang, W.J., Payami, H. "Gene expression changes in response to paraquat and caffeine in a *Drosophila* model of Parkinson's disease." *American Society of Human Genetics (ASHG)*. Boston, MA. October 2013.

Payami, H., **Wissemann W.T.**, Hill-Burns, E.H., Zabetian, C., Factor, S.A., Patsopoulos, N., Hoglund, B., Holcomb, C., Thomson, G., Erlich, H. "Investigation of classical human leukocyte antigens (*HLA*) and expression quantitative trait loci (eQTL) within the *HLA* region in association with Parkinson's disease." *American Society of Human Genetics (ASHG)*. Boston, MA. October 2013.

Wissemann, W.T., Hill-Burns, E.M., Hamza, T., Zabetian, C., Factor, S.A., Payami, H. "Identification and replication of a novel susceptibility locus for Parkinson's disease that is associated exclusively with sporadic." *International Conference on Alzheimer's and*

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Parkinson's Diseases (AD/PD). Florence, Italy. March 2013.

Invited Speaker "Accomplishing Big Things in Small Pieces." *College and Arts Community Night: Totally Wick(ed) Awesome*. Baltimore Museum of Art, Baltimore, MD. October 2010.

Research Interests Computer Vision, Image Processing, Machine Learning, Human Perception, Feature Detection, Image Segmentation, Artificial Intelligence, Human-Computer Interaction and Distributed Systems

Technical Skills **Proficient:**
Java, Python, PHP, HTML/CSS, MySQL, R, Bash Scripting, MS Office products and other common commercial software

Sufficient:
C++, Perl, Processing, LaTeX

Knowledge of:
Mathematica, Prolog, SML of New Jersey

Professional Organizations Member of the American Society of Human Genetics