

1st December, 2017

Dear Spatial Sciences Institute Community:

I'll start this holiday letter to you with some upcoming calendar highlights:

- We hope you will join us for an exciting program we lined up for the 2018 [Geospatial Summit](#) at the USC Radisson on **Friday, February 23, 2018**. Topics include the power of geospatial data with “Big Data Wizard” Jeff Jonas and the data analytics company Alteryx and how GIS and geographic information science and the accompanying geospatial technologies are furthering sustainability, along with student lightning talks. Please [register now](#).
- As part of our ongoing commitment to the life-long learning of our GIST and other USC Spatial alumni, we are presenting a special [Trojan Recharge](#) program on **Saturday morning, February 24th** at the Mixed Reality Lab (MxR) located at USC facilities in Playa Vista. Don't miss this rare opportunity to participate in demonstrations of how USC researchers, including USC Spatial Sciences Institute faculty, are using GIS methodologies to produce and analyze real-world terrain data sets to create immersive experiences through virtual reality.
- And it's never too soon to calendar our annual reception at the **Esri User Conference** in San Diego on **Tuesday, July 10, 2018, 6 p.m.**, at Roy's.

And now to some hearty congratulations:

- As part of the International GIS Day observances on Wednesday, November 15, 2017 – and as part of Challenge Week leading up to the annual USC-UCLA football game – spatially-oriented USC students prevailed over their UCLA counterparts in the first annual “**Battle of Maps**” to determine which university team could make the most map edits for the Humanitarian OpenStreetMap Team. Under the leadership of GeoDesign majors **Natalie Millstein** and **Alex Chen** with USC Visualization Librarian **Andy Rutkowski**, Trojan mappers contributed to priority OSM humanitarian projects around the world, including in Africa, South America, and Asia, mapping roads, coastlines, rivers, buildings, and structures.
- **Weiwei Duan**, a computer science Ph.D. student working with USC Spatial faculty Dr. **Yao-Yi Chiang**, won the **U.S. Geospatial Intelligence Foundation/NVIDIA's GPU Essay Challenge** and received two NVIDIA Titan Xp GPUs as the prize.



- **Haowen Lin**, a computer science major also working with Dr. Chiang, won first place in the ACM Student Research Competition at the 2017 International Conference on Advances in Geographic Information Systems (**SIGSPATIAL**) for her presentation on “Automatic Extraction of Phrase-Level Map Labels from Historical Maps.”
- Dr. **Yao-Yi Chiang**, **Weiwei Duan**, USC Spatial faculty affiliate **Craig Knoblock** with Johannes Uhl and Stefan Leyk won the **best paper award** for their paper [Extracting Human Settlement Footprint from Historical Topographic Map Series Using Context-Based Machine Learning](#) at the 8th **International Association for Pattern Recognition Conference on Pattern Recognition Systems**, Madrid, Spain, in July 2017.
- M.S. GIST student **Sarah Godfrey** received a **DigitalGlobe Foundation imagery grant** in support of her thesis on the Pacific pocket mouse.
- USC Spatial faculty **Jennifer Swift** and **Darren Ruddell** are conducting a “Wicked Problems Practicum” sponsored by USC Provost Michael Quick on [“Age-Friendly L.A.”](#) to make Los Angeles a better place to grow old. Using interactive maps and GeoDesign principles, the interdisciplinary team of students are developing a website and mobile app to tell layered stories about aging in Los Angeles that can serve as a resource for community leaders and residents.
- USC Spatial faculty [An-Min Wu](#) has been elected to the USC Dornsife Faculty Council for 2017-2018. The Dornsife Faculty Council is the only elected body that represents the interests of the whole of the USC Dornsife faculty with the USC Dornsife administration and to the University at large through the Academic Senate and collaboration with the Provost’s office and other university administrators.
- **Katsuhiko “Kirk” Oda** also of our SSI faculty received a [Transformative Research grant from the National Center for Research in Geography Education \(NCRGE\)](#), a research consortium headquartered at the American Association of Geographers (AAG) and Texas State University. This grant supports the exploration of the value of K-12 teachers using geospatial technology in different subject areas. Through a series of sessions with middle school teachers, Dr. Oda’s research group will collect and analyze reflective journals, lesson plans, and classroom demonstrations to identify the components of a TPACK model for geospatial technology.
- **Ann Owens**, assistant professor of Sociology and Spatial Sciences, is a 2017 recipient of the **Raubenheimer junior faculty award**, USC Dornsife’s highest faculty honor, recognizing her excellence in research, teaching and service to the University.

Throughout the Fall 2017 semester, nearly 40 undergraduate and masters students have been conducting research and doing directed research projects with USC Spatial faculty and staff. Kudos

to the teams and projects under the direction of Dr. **Yao-Yi Chiang**, Dr. **Steven Fleming**, Dr. **Su-Jin Lee**, Dr. **Travis Longcore**, Dr. **Laura Loyola**, Dr. **Andrew Marx**, Dr. **Darren Ruddell**, Dr. **Jennifer Swift**, **Beau MacDonald**, Dr. **An-Min Wu**, and **myself**. We look forward to the posters, maps, and presentations that will be forthcoming from these research groups in the Spring 2018 semester.

In the past six months, our faculty have published numerous articles and works in a wide range of interdisciplinary areas:

Zhang, L. L., Yue, T. X., **Wilson, J. P.**, Zhao, N., Du, Z. P., and Liu, X., [A comparison of satellite observations with the XCO₂ surface obtained by fusing TCCON measurements and GEOS-Chem model outputs](#). *Science of the Total Environment*, 601-602, 1575-1590, December 2017.

Brandt, S. J., Dickinson, B., Ghosh, R., Perez, L., Lurmann, F., Penfold, B., **Wilson, J. P.**, Millet, M., Künzli, N., and McConnell, R., [Costs of coronary heart disease and mortality associated with near-roadway air pollution](#). *Science of the Total Environment*, 601-602, 391-396, December 2017.

Duan, W., **Chiang, Y.-Y.**, Knoblock, C. A., Vinil, J., Feldman, D., Uhl, J. H., and Leyk, S., [Automatic Alignment of Vector Data with Geographic Features for Feature Recognition in Historical Maps](#). In *Proceedings of the First GeoAI Workshop*, Redondo Beach, California, USA, November 2017.

Lin Y., Pan F., **Chiang Y.-Y.**, Stripelis D., Ambite J. L., Eckel S. P., and Habre R., [Mining public datasets for modeling intra-city PM_{2.5} concentrations at a fine spatial resolution](#). In *Proceedings of the 25th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL 2017)*, Redondo Beach, California, USA, November 2017.

Marx, A., and Rogers, M. Z., [Analysis of Panamanian DMSP/OLS nightlights corroborates suspicions of inaccurate fiscal data: A natural experiment examining the accuracy of GDP data](#). *Remote Sensing Applications: Society and Environment*, 8:99-104, November 2017.

Bernstein, J.M., Szuster, B. & Philips, [Assessing the Diversity of Contemporary Environmentalism: Time for a New Paradigm](#). *International Journal of Environmental Research*, October 2017.

Holmes-Wong, D., **Chiang, Y.-Y.**, Unlocking Maps for Discovery and Other Purposes, *Digital Library Federation (DLF) Forum*, Pittsburgh, Pennsylvania, USA, October 2017.

Eckel, S. P., Deng, H., Urman, R., Habre, R., Morrison, J., Gauderman, J., Ambite, J. L., **Chiang, Y.-Y.**, Stripelis, D., and Gilliland, F. D., Methods for Predicting Asthma Exacerbations using Personal Sensor Monitoring systems, *International Society for Environmental Epidemiology (ISEE)*, Sydney, Australia, September 2017.

Paudel, S., Benavides, J. C., **B. MacDonald**, **T. Longcore**, G. W. T. Wilson, and S. Loss. [Determinants of native and non-native plant community structure in an oceanic island](#). *Ecosphere* 8(9):e01927, September 2017.

Marx, A., Using Satellites to detect mass human rights violations, [Last Lectures on the Prevention and Intervention of Genocide](#). Ed. Samuel Totten. Routledge, September 2017.

Uhl, J. H., Leyk, S., **Chiang, Y.-Y.**, Duan, W., and Knoblock, C. A., [Extracting Human Settlement Footprint from Historical Topographic Map Series Using Context-Based Machine Learning](#). In *Proceedings of the IAPR 8th International Conference on Pattern Recognition Systems*, Madrid, Spain, July 2017.

Nanetti, A., Cattaneo, A., Cheong, S.-A., **Chiang, Y.-Y.**, and Lin, C.-Y., Visual Knowledge Aggregation: From Static to Dynamic Information Systems in Library Contexts. In *Proceedings of the ICA Pre-Conference Workshop on Mapping Tools for Non-Mapping Experts: Incorporating Geospatial Visualization Tools in Libraries*, Washington, D.C., USA, July 2017.

Leyk, S. and **Chiang, Y.-Y.**, Implementing the Concept of Geographic Context for Efficient Recognition from Large-Scale Topographic Map Series. In *Proceedings of the 28th International Cartographic Conference*, Washington, D.C., USA, July 2017.

Chiang, Y.-Y., Linking Historical Maps to the USC Shoah Foundation Visual History Archive. In *Proceedings of the 28th International Cartographic Conference*, Washington, D.C., USA, July 2017.

Gillespie, T. W., Willis, K. S., Ostermann-Kelm, S., **Longcore, T.**, Federico, F., Lee, L., and MacDonald, G. M. [Inventorying and monitoring night light distribution and dynamics in the Mediterranean Coast Network of Southern California](#). *Natural Areas Journal* 37(3):500–510, July 2017.

Elson, L., **Wright, K.**, **Swift, J.**, and Feldmeier, H. [Control of Tungiasis in Absence of a Roadmap: Grassroots and Global Approaches](#). *Tropical Medicine and Infectious Disease*, July 2017.

Chiang, Y.-Y., Jain, A., Bandyopadhyay, B., Knoblock, A. C., [Automatic Learning of User Design Rationales from Examples](#). In *Proceedings of the Symposium on Solid and Physical Modeling (SPM)*, Berkeley, CA, USA, June 2017.

Bernstein, J. [Mother Earth and Earth Mothers: Why Environmentalism has a Gender Problem](#). *Breakthrough Journal*, June 2017.


In addition, Managing Director **Susan Kamei**, Academic Programs Director **Ken Watson**, and I gave six presentations at the October 2017 **URISA GIS-Pro Conference** in Jacksonville, Florida. Dr. **Darren Ruddell** and I represented USC Spatial at the **2018 UNIGIS Business Meeting** in Amsterdam, the Netherlands.

As we close out this Fall 2017 semester, we would like to acknowledge the tremendous service of **Dr. Darren Ruddell** over the past six years as our inaugural **Director of Undergraduate Studies**. Thanks to Dr. Ruddell's leadership, our undergraduate program launched into an immediate success and is well-positioned for continuing academic accomplishments. We welcome **Dr. Laura Loyola** into the Director of Undergraduate Studies role as of the Spring 2018 semester for a three-year term.

We also welcome to the USC Spatial faculty **Dr. Jason Knowles**, founder and CEO of GeoAcuity, LLC, a consulting firm focused on providing high-quality geospatial solutions to the environmental, municipal and research sectors. Dr. Knowles received his Ph.D. in Geography from Louisiana State University and has served as a naval intelligence officer and as a senior geospatial scientist/geospatial solutions architect with DigitalGlobe. He will be teaching part-time in the Geographic Information Science and Technology Graduate Programs.

On behalf of all of the USC Spatial faculty and staff, we wish you and your families a very happy holiday season and all the best for a wonderful new year.

With kind regards,

A handwritten signature in blue ink that reads "John P. Wilson". The signature is written in a cursive, flowing style.

John P. Wilson
Professor and Founding Director, Spatial Sciences Institute