Kannan K. Puthuval

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Experience

Software Engineer, The Scotts Company, 2017 - present.

- Managed the release and deployment of an IoT cloud application serving 15k users using Python, Django, Docker, AWS-EC2, AWS-ECS, AWS-S3.

- Led maintenance and upgrades for CI/CD pipeline using Travis, Jenkins, GitHub, and SaltStack.

- Led the major rewrite of an embedded IoT gateway application, using Python and embedded Linux.

- Led the mechanical engineering and new product development of an IoT irrigation timer.

- Developed software and hardware of a data acquisition system for measuring flow meter performance.

- Developed a framework for continuous automated testing of IoT devices.

- Developed a BLE interface for factory testing of an IoT device.

- Debugged and analyzed distributed system of cloud, mobile, and embedded components.

Chief Scientist & Director of Product Development, Oso Technologies, 2015 - 2017.

- Directed the development of four new hardware products for monitoring and caring for plants; a smart soil moisture sensor, a smart watering valve, and two ZigBee networking devices.

- Developed technology for capacitive soil moisture sensing and implemented in a new device.

- Designed, prototyped and tested injection-molded plastic enclosures to IP67 standards using CAD software, 3D printing and mold casting.

- Designed new test protocols, conducted experiments and analyzed data to characterize the behavior of existing soil moisture sensors in various soil types.

- Built software tools to improve the customer support experience by analyzing and visualizing data and automating support agent tasks.

Research Coordinator, University of Illinois SoyFACE Project, 2012 - 2015.

- Directed field research operations and coordinated a multi-disciplinary team of researchers and technicians at SoyFACE, a field site investigating the interaction of plants and global change.

- Developed, implemented and maintained new research tools including data acquisition and control software, free-air CO_2 and O_3 enrichment systems, and a system of automated and instrumented rainout shelters for an open-field drought experiment.

- Curated site-generated data and developed GIS for infrastructure and experiment planning.

Research Technician, University of Illinois SoyFACE Project, 2009 - 2012.

- Operated and maintained equipment, including rainout shelters, free-air concentration enrichment systems, and environmental growth chambers.

- Collected and analyzed data on weather,soil, plant physiology, and gene expression.

Patents

- Mane, M., Singer, D., Puthuval, K. (2018) *USD829574S1* Retrieved from http://patft1.uspto.gov/netacgi/nph-Parser?patentnumber=D829574

Publications

- Gray, S.B., Strellner, R.S., Puthuval, K.K., Ng, C., Shulman, R.E., Siebers, M.H., Rogers, A., and Leakey, A.D.B. (2013). Minirhizotron imaging reveals that nodulation of field-grown soybean is enhanced by free-air CO_2 enrichment only when combined with drought stress. *Functional Plant Biology* 40, 137-147.

- Gray, S.B., Strellner, R.S., Puthuval, K.K., and Leakey, A.D.B. (2011). Elevated CO_2 increases stomatal closure under reduced soil moisture in soybean *(Glycine max). American Society of Plant Biologists Annual Meeting.* Minneapolis, MN.

- Gray, S.B., Strellner, R.S., Puthuval, K., and Leakey, A.D.B. (2010). Free-air CO_2 enrichment does not lessen the impact of drought on soybean photosynthesis under field conditions. *The Ecological Society of America 95th Annual Meeting.* Pittsburgh, PA.

Education

- B.S. Integrative Biology, University of Illinois, 2007

Service & Other Experience

Volunteer, Engineers Without Borders UIUC Nigeria Water Project, 2011 - 2012.

Foreign English Teacher, Jishou University, Hunan Province, China, 2007 - 2008.

Co-Director, The Bike Project of Urbana-Champaign, 2005 - 2007.

References

- Anthony Huy, Product Development Lead, The Scotts Company (anthony.huy@scotts.com)

- Kaido Kert, Tech Lead Manager, YouTube (kaidokert@gmail.com)

- Mercedes Mane, COO, The Product Manufactory (mercedes@theproductmanufactory.com)