Greater Seattle Area, WA, USA

KARTHIK NADIG

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EMPLOYMENT

Senior Software Engineer — MICROSOFT CORPORATION — Feb-2017 to present

- Working on ptvsd (debugger used in VS Code Python, Python Tools for Visual studio). I am working on implementing several debugger features, Django/Jinja2 template debugging, and enabling cross-platform debugging.
  Product: https://github.com/Microsoft/PTVS; https://github.com/Microsoft/ptvsd
- Working on remote R services for Windows Server and Linux. It enables developers to take advantage of the powerful Visual Studio IDE and the Azure cloud to work with R running on either Windows or Linux.
  Product: https://github.com/Microsoft/RTVS

Software Developer Engineer II — MICROSOFT CORPORATION — Feb-2015 to Feb-2017

- Worked on COM building platform APIs for Universal Windows Platform.
- Added SQLite as a windows platform component, addition of this has reduced the package size of apps (~1.2 MB) since they don't have to bundle a copy of SQLite.
- Resolved several MSRC issues, this reduces the attack surface of windows platform hence reducing the chances of customer's devices from being compromised.
- Worked on R Tools for Visual Studio, added remote services that allow seamless local and remote R development experience form the same Visual Studio IDE.

Software Developer Engineer — MICROSOFT CORPORATION — Aug-2012 to Jan-2015

- Developed Asynchronous Causality feature in windows which is used to track *async* function calls across language projection boundaries (*patent: Diagnostics of state transitions*), this allows Visual Studio to present the full call stack for *async* functions.
- Developed per-app hive mechanism for modern apps, this reduces the memory usage for apps as they only load what is needed from the registry.

Software Developer Engineer, Intern — MICROSOFT CORPORATION — May-2011 to Aug-2011

- Developed and presented apps for Windows 8 platform, these were prototype apps that were used to demonstrate modern app platform.

Research Assistant — UNIVERSITY OF GEORGIA — Sep-2010 to May-2012

- Designed and developed Neural Network based air temperature and dew point temperature prediction models. These models were used to predict air temperature up to 12 hours in advance. This helped farmers, subscribed to the weather monitoring system, get warnings about freeze or frost events well in advance, and take preventive actions against crop damages due to drop in temperature. ***Product***: georgiaweather.net

PROJECTS

- **ptvsd** *(Dec-2017 - present)*: This is a python debugger used by VS Code and Visual Studio. This debugger is built to support the VS Code debugger protocol. It supports python web development, multi-threaded and multi-process debugging, and works on Windows, linux, and Mac.
  Product: https://pypi.python.org/pypi/ptvsd
  Source code: https://github.com/Microsoft/ptvsd
- **Python Tools for Visual Studio** *(Dec-2017 – present)*: This is an extension for Visual Studio(VS) for Python development, and web development. I am working on the debugger for python. This extension allows developers to work with Django, Flask, and Bottle web frameworks out of the box. Developers can work on local or remote environment with a full featured cross-platform python debugger.
  Product: https://www.visualstudio.com/vs/features/python
  Source code: https://github.com/Microsoft/PTVS
- **R Tools for Visual Studio** *(May-2016 - present)*: This is an extension for Visual Studio that turns it into R IDE. I worked on Remote R services feature. It allows users to execute and debug R code on cloud or different platform (windows/linux). The feature aims to provide seamless experience between local and remote development environments. Developing Remote R services required deep knowledge of Windows and Linux OS, user model, services, security, and container technologies.
  Product: https://www.visualstudio.com/vs/rtvs
  Source code: https://github.com/Microsoft/RTVS
- **Fuzzy Logic Model to C converter** *(May-2013 -)*: This is a tool that allows users to convert their fuzzy logic models developed in MATLAB to C code. The tool generates a deployable Arduino project that can be compiled and written to an Atmel chip (in Arduino) without requiring any C coding experience.
  Product: http://www.makeproto.com/projects/fuzzy/matlab_arduino_FIST/index.php
  Source code: https://github.com/karthiknadig/ArduinoFIS

- **CPIDR 5.1** *(Aug-2012)*: Worked on validating CPIDR (Computerized Propositional Idea Density Rater) and fixing problems while running it on windows. The program performance was improved to load in a fraction of the time compared to CPIDR 3 which took about 3 mins to load.
  Product: http://ai1.ai.uga.edu/caspr
- **Homogeneous RF Coil for MRI** *(Dec-2011)*: Developed an evolution based approach to find the key parameters for the RF coil used in MRI machines. The results from Finite-Difference Time-Domain (FDTD) based simulation was used to tweak the coil parameters. This reduced the time and work that would have been needed to design, build, and test a real copper coil to find the coil with the desired properties.
  Paper: Karthik Nadig, W. Potter and Walter. D. Potter, Homogeneous RF coil design using Genetic Algorithms, IEA-AIE, 2012
- **Evolutionary Robotics** *(Dec-2010)*: Designed an Arduino based robot that could navigate indoors by learning to detect and avoid obstacles. The robot started with the ability to read sensor values and control motors, and over time evolved the avoidance algorithm.
  Paper: Karthik Nadig, K. Rasheed and et. al., Evolving Efficient Sensor Arrangement and Obstacle Avoidance Control Logic for a Miniature Robot, IEA-AIE, 2011

EDUCATION

- **Masters in Artificial Intelligence** *(Aug-2010 to Aug-2012)*: From The University of Georgia - Athens, GA (GPA 4.0/4.0); Software Foundations; Algorithms; Genetic Algorithm; Computational Intelligence; Machine Learning.
- **Bachelors in Engineering** *(Sep-2003 to Jun-2007)*: Major in Electronics, from Vidya Vardhaka College of Engineering - Mysore, KA, India (GPA 3.9/4.0); Signal Processing; VHDL; Wireless Networks; Antenna Design
  First place in State Level and Second place in National Level paper presentation organized by IEEE, Mysore

LANGUAGES AND TECHNOLOGIES

- C++; C; C#; .Net; SQL; R; Python;
- Windows; Linux (Ubuntu/RHEL/SLES);
- GitHub: https://github.com/karthiknadig