ZANG, ZHIQIANG

⌖ Objective: SDE/Research Intern

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🐙 https://github.com/cptgit
🔗 https://rocketeer.buptra.net/

🎓 EDUCATION

The University of Texas at Austin   Austin, TX, U.S.

Ph.D. in Software Engineering and Systems   GPA: 3.83/4.00   Aug 2018 – Present

Beijing University of Posts and Telecommunications   Beijing, P.R. China

B.S. in Telecommunication Engineering   GPA: 91/100 Rank: 11/556   Sep 2014 – Jun 2018

💼 INTERNSHIP

NIO   Beijing, P.R. China

Simulator for Autonomous Vehicles   Jul 2019 – Aug 2019

AirSim, Unreal Engine, Autonomous Vehicles   Mentor: Zhuo Cheng

Brief: This project aims to develop a physical and visual simulator for autonomous vehicles.

⚛ RESEARCH

The University of Texas at Austin   Austin, TX, U.S.

Research Assistant   Advisor: Milos Gligoric

VeDebug: Regression Debugging Tool for Java   Aug 2018 – Nov 2018
Debugging, Dynamic Program Analysis, ASM

Brief: VEDEBUG is a video-based time-travel regression debugging tool to advance users' debugging experience. A unique feature is automatically setting a "divergence breakpoint" wherever the control flow of the current execution diverges from the flow of a previously captured execution.

- Migrated VEDEBUG to a mainstream Java version, fixed bugs on core features and implemented a bonus feature to record the history of objects
- Collected and analyzed time overhead over different phases (instrumentation, IO, execution, etc.) using dynamic program analysis and automation scripts
- Developed automation scripts to deploy and run VEDEBUG over open-source projects to evaluate its time overhead

Beijing University of Posts and Telecommunications   Beijing, P.R. China

Cooperative spectrum sensing based on machine learning   Apr 2016 – Mar 2017
Machine Learning, Signal Processing   Advisor: Wenjun Xu

- Applied clustering/classification algorithms (K-Means, GMM, SVM and KNN) to cooperative spectrum sensing improving the detection accuracy by 50%

✈ PROJECTS

Building Real-Time Strategy Game AI   Dec 2017 – May 2018
Object Detection, Deep Learning, Game AI   Advisor: Xiaosheng Tang

Brief: RABOT AID is an AI agent (bot) for real-time strategy game *Command & Conquer: Yuri's Revenge*. It plays the game like the human: watches by acquiring real-time screenshots of the game, decides by analyzing the screenshots and acts by controlling keyboard and mouse. Experiments showed that RABOT AID can defeat the AI embedded in the game under fixed conditions with a win rate of over 80%. Demo link

- Collected image data from game videos and then preprocessed, labeled and augmented the data using Python with OpenCV
- Analyzed dynamic battlefield by building a SSD model using TensorFlow Object Detection API while recognizing static sidebar via template matching
- Implemented in-game commands (build, move, attack) by combining image recognition and keyboard/mouse simulation, thus supporting advanced game strategy execution

📖 PUBLICATIONS

VeDebug: Regression Debugging Tool for Java
B. Buhse, T. Wei, Z. Zang, A. Milicevic, and M. Gligoric, "VeDebug: Regression debugging tool for Java," in *2019 IEEE/ACM 41st International Conference on Software Engineering: Companion Proceedings*.   IEEE Press, 2019, pp. 15–18

🎖 AWARDS

Undergraduate Top Prize Scholarship of BUPT Nomination (0.6%)	Nov 2017
First Prize Scholarship of BUPT	Nov 2017
Qualcomm Innovation Scholarship (0.8%)	Dec 2015 & 2016
Second Prize Award for National College Students Mathematical Competition	Nov 2015

⚙ SKILLS

- Programming Languages: Java, Bash, Python, C/C++
- Tools: Emacs, Git, Maven, Gradle, Make
- Platform: Linux