Yuan-Peng (Patrick) Yu

Software Developer

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PROFESSIONAL SUMMARY

- Skilled in **C++** and **Python**. Accomplished multiple projects in **computer vision** and **data science** field.
- Experience in simultaneous localization and mapping (**SLAM**) methods using cameras and LIDARs .
- Proficient in **the back-end of Integrated Circuits (IC) design flow** for mixed-signal circuits.

EDUCATION

Research Assistant
College Station, TX
NetBot Laboratory, Texas A&M University
June 2016 - Present

- Conducted research on visual simultaneous localization and mapping (SLAM) to advance the development of robots and autonomous vehicles. Achieved tasks include camera calibration, features detection, and camera pose estimation. Allow indoor robots to localize and build maps.
- Implemented the automatic map initialization in the current state-of-the-art algorithm, ORB-SLAM. Computed the mathematics model and acquired the camera pose from any scene pairs. Investigated the limitations of ORB-SLAM and proposed methods to improve indoor SLAM performances.
- Created an image stitching program to present a panoramic image. Detected and matched image keypoints by the SIFT algorithm. Automatically estimated homography matrix through the RANSAC method. Generated a 180° view landscape image by combining multiple images.

Bachelor of Science in Computer Engineering
College Station, TX
Texas A&M University, College Station
September 2014 - May 2017

- Overall GPA: 3.75/4.0 Major GPA: 3.82/4.0
- Graduation honor as an Undergraduate Research Scholar
- Analyzed the top 4000 Kickstarter projects to acquire investment insights. Applied web scraping skills to collect data. Built database by Python Pandas and NumPy. Utilize Scikits-learn to cluster data trend and classify labels. Concluded 8 business analyses through data visualization.

Associate of Science in Electronic Engineering
Taipei, Taiwan
National Taipei University of Technology
September 1994 - June 1999

- Overall GPA: 3.6/4.0 (top 10%)
- Earned the Distinguished Student Award in 1998 & 1999, respectively. Awarded students are excellent in ethical, intellectual, physical education, and social skills.
- Built an application to diagnose the possible locations of brain cancer in MRI. Developed 3 detection algorithms in C++. Reconstructed a 3D model from 2D MRI to show the relative positions.

EXPERIENCE

Senior IC CAD/Physical Design Engineer
Taipei, Taiwan
Jian Yu Co., Ltd
October 2009 - August 2014

- Led project-based teams to shorten physical design flow. Created at least 50 kinds of Cadence SKILLs, Parameterized Cells, and Dracula Command files to reduce processing time. Completed more than 40 tape-out and the projects were done ahead of schedule.

IC CAD/Layout Engineer
Hsinchu, Taiwan
Leadtrend Technology Corporation
June 2004 - September 2009

- Implemented AC/DC controller ICs in different processes, ranging from Bipolar/CMOS/DMOS high-voltage processes to mixed-signal processes. Jobs include IC full chip floorplanning, place and route, and physical verifications. Completed at least 30 projects. The works became star products of the company and contributed to the successful initial public offering of the start-up company.

Management Information System Engineer
Taipei, Taiwan
Air Grand Corporation
July 2001 - May 2004

- Provided technological services to 50 users. Constructed the company website and network infrastructures. Completed the project within 70% of its budget and achieved a 90% satisfaction.

SKILLS

Programming:
C | C++ | Python | Matlab | GDB debugger | git | github | LaTeX | CMake | HTML | CSS | Bootstrap

Computer Vision:
Multiple View Geometry | SLAM | Visual SLAM | ORB-SLAM | ROS | OpenCV | Unity | Images Stitching | Features Detection | SIFT | Pose Estimation | 3D Reconstruction | Camera Calibration | Perspective Rectification

Data Mining:
SQL | XML | Pandas | Web Scraping | Beautiful Soup

Machine Learning:
NumPy | SciPy | Scikits-learn | NetworkX

Data Visualization:
Matplotlib | Seaborn | Plotly | Pygal

ASIC Design Flow:
HSPICE | Mentor Calibre | Cadence SOC Encounter | Virtuoso | Verilog | Floorplan | Place & Route | Layout Versus Schematics | Design Rules Checking | Layout Parasitic Extraction

Certificates:
Digital IC Design | Analog IC Design | System-on-Chip Design | Semiconductor Physics | Semiconductor Devices