LIN KUN-YING (林昆穎)

Profile

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Current Job:

- **[2015 early ~ Now]** RD Principle Engineer of Delta Research Center(DRC) @ Delta Electronics,Inc., Taiwan

- **Job Responsibility:**

  i. Develop next generation IoT Smart Gateway base on OPC Unified Architecture standard on embedded linux system.
  ii. Research & develop heterogeneous-signal track and trace system for human or object target.

Previous Work Experience:

1. **[2012 late ~ 2015 early]** Co-Founder, Algorithm Engineer, and Software Engineer @ SAILS Technology, Taiwan

- **Job Responsibility:**

  i. Design mobile phone indoor navigation engine core SDK on Android platform.
  ii. Design mobile phone indoor positioning calibration tool.
  iii. Design demo app on different kinds of positioning environment.
  iv. Create indoor map control interface (routing algorithm, finger gesture map control function).

2. **[2009 late ~ 2012 late]** Senior RF Engineer of Mobile Communication Department @ Wistron NeWeb Corporation, Taiwan

- **Job Responsibility:**

i. Developing Lenovo **Lephone** (ODM project for Lenovo first 3G smartphone) (WCDMA & EVDO).
ii. RF front-end design and debugging base on Qualcomm Snapdragon QSD8250 + RTR6285 platform.
iii. GNSS Front end circuit design and debugging.

Technical Skill & Develop Experience

- **General Skill:**

  i. Languaue: Java, C, Python
  ii. Instrument: Oscilloscope, Spectrum Analyzer, Network Analyzer
  iii. Tool: OrCAD capture, LabView, Matlab, Git

- **Wi-Fi & Bluetooth Low Energy (BLE):**

  i. Mobile: Scanning advertising signal RSSI of surronding BLE beacons or Wi-Fi AP by using Android BLE/Wi-Fi API.
  ii. BLE protocal stack: familiar with BLE4.0/4.1/4.2/ PHY and packet data format.
  iii. BLE application protocol stack: **iBeacon** for real case use, **Eddystone** & **AltBeacon** has study experience.
  iv. Experience with **TI SmartRF Packet Sniffer Tool** to verify BLE beacon packet data information.

- **Algorithms:**

  i. Implement **DBSCAN** clustering technique for RSSI signal selection.
  ii. Implement **FIR** and **IIR** signal processing for RSSI smoothing.
  iii. Positioning algorithm development:
    - Absoluted positioning algorithm:
      a. Proximity approach (Path-loss model approach).
      b. RSSI Fingerprinting.
      c. Lateration approach: **Least-square** & **Newton-Rsphson** solver.

    d. **Angle of Arrive (AoA)** approach simulation analysis.
  - Relative positioning algorithm (**IMU**):
    a. Human step-length predition algorithm.
    b. **Dead-Reckoning** algorithm: developing by fusing accelerometer/Gyroscope/magnetometer sensor on Android mobile device.
  - Fusion positioning algorithm:
    a. Fusing both absoluted and relative positioning technique.
    b. Develop **Kalman Filter** & **Particle Filter** data fusion. algorithm

iv. Path routing algorithm: 3D **dijkstra** shortest path algorithm.

- ## Commnuication Interface:

i. **I2C** & **SPI** sensor signal extration (experience with 10-DoF IMU sensor board `GY-87: MPU6050/HMC5883L/BMP180` on Raspberry Pi).
ii. USB-to-TTL (UART or RS232) for connecting PC Terminal.

- ## RF Technique Knowleage:

i. Antenna element and array design.
ii. Experience for switch-beam (base on **Butler Marix** beamforming network) phase array front-end system development.
iii. Mobile phone RF front-end circuit design and debugging.

- ## Linux Skills:

i. GDB debugger.
ii. GNU Toolchain usage.
iii. Linux boot process knowleage.
iv. Valgrind Memory leak checker.
v. Basic Shell scripting.

vi. Basic CMake build project.