Yin Jeh Ngui (Jason)

yinjeh.ngui@gmail.com • +886 0936 266 696
https://www.linkedin.com/in/yjngui/
https://flyercarol.github.io/
Taipei, Taiwan

Postdoctoral researcher in near-surface geophysical (NSG) exploration, slope monitoring, suspended sediment monitoring, dielectric spectroscopy, R&D in software/hardware interfacing. Over 6 years of professional experience in engineering geophysics, civil/geotechnical engineering, site investigation and co-advising graduates. Actively researching Internet-of-Things (IoT) and machine learning to incorporate in ongoing projects.

Highlights

- NSG exploration team leader
- Electrical resistivity tomography
- Advanced time-domain reflectometry (EM)
- Active surface seismic and passive seismic survey

- Borehole (E-logging, televiewer, suspension-PS)
- Full-stack IoT researcher/developer
- Headless Linux (Ubuntu/Debian/Raspbian)
- Experienced maker in Raspberry Pi, Arduino, ESP

Work Experience

Postdoctoral Researcher   Oct 2019 – Present
Disaster Prevention and Water Environment Research Centre, NYCU/NCTU, Taiwan.

- Lead near-surface geophysics exploration field works (surface and borehole methods) at slopes, dams, LNG underground storage, nuclear power plants, airstrips, contaminated sites and so on.
- Analyze, interpret and communicate exploration survey outcomes and countermeasures to stakeholders
- Deploy and maintain IoT + TDR monitoring stations in slopes and reservoirs with full stack IoT.
- Collaborate in inter-disciplinary DSGSD research involving remote sensing, passive induced seismicity, and near-surface geophysics.
- Design, assemble and deploy PCB layout for automated IoT monitoring modules
- Co-advise doctoral and masters student from Geo-Imaging and Geo-Nerve research group
- Collaborate in research discussion and publication composition

Projects

Comprehensive slope monitoring in potential DSGSD sites   2016 – Present
- Field installation for TDR cable and inclinometer casing across 10 sites in Taiwan
- R&D for real-time monitoring based on low-powered IoT devices and Raspberry Pi
- Consolidate long-term monitoring data from slope deformation monitoring, ground water level, soil moisture content, tiltmeter, rain gauge

MASW surface seismic and SPAC/MAPS passive seismic survey   2019 – Present
- Dam safety inspection in Hushan Reservoir, Taiwan

Electrical resistivity tomography/imaging (ERT/ERI)   2016 – Present
- Slope monitoring and geo-environmental prospecting using surface and cross-hole arrays

Borehole geophysics projects for geotechnical and geological investigation   2015 – Present
- E-logging, suspension PS-logging, borehole optical and acoustic televiewer, borehole flowmeter

TDR based suspended sediment concentration (SSC) monitoring R&D in reservoir   2015 – Present

Offshore TDR based SSC monitoring R&D   2015 – 2016

In-situ dielectric spectroscopy R&D for contaminated soils   2014 – 2019

Electricity generation monitoring for microhydropower site   2020

Education

PhD in Civil Engineering | Geotechnical Engineering and Geophysics Exploration	Sep 2014 – Jun 2019
National Chiao Tung University	Hsinchu, Taiwan
BEng (Hons) in Civil Engineering	Sep 2010 – Jun 2013
The Hong Kong Polytechnic University	Hong Kong S.A.R.

Selected Publications

Ngui, Y. J. and Lin, C.-P. (2021). "Self-Referencing TDR Dielectric Spectroscopy using Reflection-decoupled Analysis with a Mismatched Section", Submitted to *IEEE Transactions on Instrumentation and Measurement*.

Lin, C.-H., Lin, C.-P., Ngui, Y. J., Wang, H., Wu, P.-L., He, G.-J., and Liu, H.-C. (2019). "Diameter assessment of soilcrete column using in-hole electrical resistivity tomography." *Géotechnique*, 1–13.

Lin, C.-P., Ngui, Y. J., and Lin, C.-H. (2018). "Multiple Reflection Analysis of TDR Signal for Complex Dielectric Spectroscopy." *IEEE Transactions on Instrumentation and Measurement*, 67(11), 2649–2661.

Skills

Languages : Mandarin Chinese (Native), English (Fluent/IELTS 8.0), Malay (Fluent), Cantonese (Fluent), Hakka

Programming : Python, Matlab, Arduino C/C++, LabVIEW, Node-RED, nginx, MQTT, MySQL, SQLite, Tensorflow

Environment : Visual Studio Code, Git, GitHub

Geotechnical : RGLDip, DIPS, Slope2000, PLATE, ETABS, IBM SPSS, Maple, Mathematica

Geophysical : AGI EarthImager, Comsol Multiphysics, SurfSeis, SpecFEM3D

CAD / GIS : AutoCAD, Sketchup, Google Earth Pro, ArcGIS, QGIS, Tecplot, Surfer, Grapher

AIoT : Software-hardware integration (Raspberry Pi, Jetson Nano, Arduino, Espressif, STM32), Wireless sensor network (LoRa, NB-IoT), Integrated low powered data-logging device, Edge AI

PCB layout : KICAD, easyEDA

Others : Microsoft Office, Markdown