


Peter Krivoshik

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Projects

LifeLine Android Application

Smartphone application on Android OS designed for senior citizens and those with limited mobility at risk of serious injury from a fall. The app utilizes the device's on-board sensors to detect falls and solicit emergency medical assistance autonomously, requiring no input.

LifeLine Standalone Hardware Device

A standalone, hardware version of my completed **LifeLine** fall detection Android app. Built around an Arduino microcontroller, the device monitors an accelerometer and utilizes a GSM module calls to emergency services after detecting a fall, again requiring no input.

rJPGC (recursive JPG Compression)

Photo library management tool that when pointed at a directory, recursively launches new threads in each subdirectory and compresses JPGs as per a specified quality. Compressed images are placed in a single output directory for easy location and storage management.

Python Based Lexical Analyzer for Java Compiler

Opens Java file as one String per line, then parses char by char with look-ahead of avg. 1-2 chars. Recognizes syntax errors; control, iterative & try-catch statements, rsvd. words, all operator types, method calls, comments & Strings, ref. vars. & hanging/unexpected braces.

HideAndSeek

A symmetric encryption and decryption tool using a 64-bit stream cipher, based on an algorithm I wrote myself. First written in Java, then JavaScript for web based operation.

PKDataLogger

Java based tool that can be integrated in Android apps to organize data structures, serialize the structures into binary files, then encrypt and upload them to a RESTful web server.

Awards & Presentations

Cyber Security Community Awareness Day Organization Committee

Helped Organize Cyber Security Event at Kean University's School of Computer Science Which Hosted Speakers From The FBI and Homeland Security – October 27th, 2017

Selected Presenter

NJ Tech Council - Medical Devices Symposium 2017

Only Undergraduate Presenter competing with Masters and Ph.D. student researchers

NSF CS S-Stem Scholarship – Fall 2017 & Spring 2018

Competitive Merit Based Scholarship from National Science Foundation

Dean's List

Kean University - Fall 2016, Spring 2017 & Fall 2017

Rider University - Spring 2015

Kean University Industrial Advisor Board Meeting

Presented my **LifeLine** Android Application to faculty and IAB board members

Kean ACM Meeting Summer Research & Internship Presentation

Presented to ACM members about my research and my **LifeLine** Android Application

Research - Kean University

Senior Research (Jan. 2018 – PRESENT)

RollJam Keyless Entry Replay Attack Vector. Exploiting Rolling Code Systems with SDR.

SPF 2017 (May 2017 – Aug. 2017) and StemPact 2017 (Aug. 2017 – Dec. 2017)

Learned how to produce Android applications and explored methods for utilizing onboard device sensors to collect data. Analyzed machine learning solutions for processing data at a high sample rate, which allowed me to produce the first prototype of the LifeLine app.

Skills

Primary Programming Languages

Java, Python, C++

Secondary Languages

JavaScript, C, SQL, XML, Assembler, HTML, CSS, PHP

Software

Android OS, GNU Radio, Sublime, Eclipse, GNU nano, VI editor, Visual Studio 2017, VirtualBox, GIMP, WireShark, nmap, Metasploit, PuTTY, WinSCP, FileZilla, RealVNC, Processing, MicroPython, KompoZer WYSIWYG

Operating Systems

Windows XP-10, MacOS 10.5-10.13, Ubuntu, Debian, Fedora, Linux (UNIX) Server, Kali Linux, Pentoo, GNURadioLive, Android & iOS

Hardware

HackRF, SDR, ISM & Short-Range Radio, LVDS & TFT, Raspberry Pi, Arduino, Atmel AVR & ARM Cortex, SIM900 GSM Module, ESP8266 WiFi Module, HC05 Bluetooth Module, I²C ICSP & JTAG

Networking Utilities & Protocols

netsh, nslookup, netstat, tracer, NAS, NAT, DNS, LAN/WAN, ARP, SSH, FTP, HTTP, TCP/IP(v4|v6)

Laboratory Equipment & Tools

Spectrophotometry, Mass and NMR Spectroscopy, Oscilloscope & Spectrum Analyzer, Function Generator, Multimeter & LCR Meter, Soldering Iron & High Voltage Safety Procedures

Education

Kean University [GPA 3.83]

Union, NJ

BS in Computer Science

Spring 2016 - *Expected Grad. Dec. 2018*

Rider University

Lawrenceville, NJ

Fall 2014 - Fall 2015

Raritan Valley Com. College

Branchburg, NJ

Winter 2012 - Spring 2014

Relevant Coursework

Algorithm Analysis, Programming Languages, Comp. Security, Assembly Lang., Data Structures, Operating Systems, Comp. Org. & Prog., Discrete Structures, Calculus 1 & 2, Comp. Systems

Experience

Perkins Restaurant Phillipsburg, NJ & Flemington, NJ

Dec.2012 to Sep. 2017

Server / Host / Certified Trainer

Rider University Lawrenceville, NJ

Sep. 2014 to Nov. 2015

GLASS-STEM Mentor