EXPERIENCE SUMMARY

- Over 10 years of full-cycle software development
- Web-Related (full-stack)
- Custom Automated Test Platform Development
- Robotics, Circuits

MOST RECENT PROFESSIONAL EXPERIENCE SUMMARY

Company: UKG (formerly Ultimate Software), Weston, FL
Software Engineer   **Jan 2020 - present**
In brief, the company's business revolves around providing SAAS encompassing just about everything related to client companies' HR systems and processes, Payroll, much more.
I am part of a team in the Business Intelligence department.
My various development activities are related to verifying that the production data in Cognos is correct. Main focus is to automate this process. Regular activities include:

- develop Java/Spring projects that use IBM Cognos SDK to verify data
- develop Java/Selenium/Aeon projects to verify data when SDK not available
- develop Java projects that use the Team City REST API and JSON Path queries to kick off and monitor builds in another team's Team City server
- develop Bash Scripts for Team City to download, and extract browser drivers and browser exe for use by Maven build steps in Team City
- develop Bash Scripts to run locally that use the Team City REST API to kick off and monitor builds
- develop new pipelines in Team City
- lead developer (not architect) of a Spring Boot application that configures across-the-board required Roles, Groups, Namespaces in Cognos environments. It follows the Terraform paradigm in that the developer specifies the desired state, and the application queries the environment and attempts to update as needed. It also checks dependencies.
- Worked withTerraform scripts and modules, and Ansible playbooks. This included creating Vms using Openstack as a test/development environment.
- Learned to use Windows Powershell to configure WinRM HTTPS listeners and self-signed certificates.

Technologies/processes: Cognos, Java, Spring, Maven, Gradle, Bash scripting, SQL, Team City, Team City REST API, JSON Path, Selenium, CI/CD, Kanban, Bit Bucket, Jira, JUnit, Git, BitBucket, Kanban, Linux, Spring Boot

MOST RECENT CAREER IMPROVEMENT SUMMARY

Self-teaching Goland and Rust. Please peruse the following playlists:

Golang:
https://www.youtube.com/playlist?list=PLNKa8O7IX-w4pmQGyiEmWY8Sb0MV1VAnJ

Rust:
https://www.youtube.com/playlist?list=PLNKa8O7IX-w7DpQn8TP0TulYUWDzGeBVA

OTHER CAREER IMPROVEMENT SUMMARY

Self-teaching Robotics, Machine-Learning, Computer-Vision, Voice-Recognition, Circuits, IoT, others.

Please peruse the following:
https://www.youtube.com/channel/UCb72JIp6nYxED-Q6NA3mRxg/videos

PROFESSIONAL EXPERIENCE SUMMARY (CONT'D)

Consulting Company: ACS
Client: ISO NE (remote job)
Full-Stack Software Engineer   **Jun – Nov 2019**
Sofware development, converting a client's system from older Java/Struts to Java 8 / Spring Boot / Spring REST / MyBatis. The legacy system had no separation between the UI and the business services layer.
Technologies/processes: In addition to above, Cucumber / Junit tests, Jira, Git, SCRUM, Behavior driven development, continuous integration, Oracle SQL

Consulting Company: Teksystems
Client: Smartmatic (remote job)
Full-Stack Software Engineer   **Nov 2018 – Mar 2019**
Contractor, worked remote in a different country from main development team, on complex, enterprise-scale project, expected to be flexible and assigned varied tasks across all the layers of the stack, and having to complete the assigned tasks within the two-week scrum sprint.

The employer provides a complete set of docker containers, and setup scripts, to be able to do local development (in case VPN not accessible).

The application is an elections system, specifically, the election-management (not the software that would run in a voting machine).

Full-stack developer.

Technologies: AngularJs, Spring, REST, Maven, Docker, JUnit, TDD, Linux, Shell scripts, Java 8, Git, Oracle, PL/SQL, SQL Developer, Postman, JSON, Jira, Portainer, nginx, networking

Cinch (Cross Country Home Services), FL
Software Engineer
Technologies - Front End/ UI : Angular 6, Typescript, Bootstrap, NPM, CLI, Visual Studio Code, JQuery, Javascript, HTML, CSS, JSON, SPA(single-page app)

Technologies - Server-side : Java 8, REST, MVC, JSP, ThreadPools, Callable, Futures, Postman, Eclipse, Maven, Zuul Proxy, Spring Boot, Spring JPA/Hibernate, Spring LDAP, Spring Security, SQL, MySQL

Other: Linux, Cygwin, Git, Stash, Jira, Bash shell scripts, Jenkins

Royal Caribbean Cruise Lines, FL
Software Engineer
Technologies, Front End / UI : Thymeleaf, JQuery, Javascript, HTML, CSS, JSON, Bootstrap, Server-side : JSP, Java, REST, Maven, Spring Webflow, Spring, Maven, Tomcat, SOAP, Eclipse, Cygwin, SVN, Bash shell scripts

Royal Caribbean Cruise Lines, FL
Software Engineer
Technologies, Server-side : IBM Websphere, JSON Mappers, SOAP REST, Tomcat, AIX, Linux, XML, Maven, Spring, Eclipse, DB2, MS SQL, JPA/Hibernate, WSDL, Jason Web Tokens, Authentication, Junit, Apache CXF, Bash shell scripts, SVN

Consulting Company: MODIS INC, FL   **Nov 2012 – Jun 2013**
Client: CITCO
Software Engineer
- Enhancement to the company's customer portal, used to prepare filings required by the SEC.
- Portlet development
- Application deployment to DEV department's lab portal server (Sun OS Unix)
- Upgrade DEV department's lab portal server from Liferay 6.1 GA1 to GA2

Technologies: Liferay, Java 1.7, JSP, JQuery, Ajax, Spring Framework, Hibernate, HTML5, Oracle, Eclipse, XML, Tomcat 7, SunOS, svn (subversion), shell scripts, Cygwin, scp, vi, sed, awk, regex

PROLEXIC.COM, FL   **Apr 2010 – Jun 2012**
Sr Software Engineer
- Two years of Liferay. 5.2.3, 6.0.2. This project was extensive Java/JEE development. Portlet development using their GenericPortlet and MVCPortlet base classes in an obect oriented methodology, including JSP's , Javascript, JQuery, AlloyUI. Theme

development. Add custom velocity variables, accessible to themes. Inter-portlet communications (events, render-parameters), Create portlets and DB tables using Liferay's service-builder. Experience deploying Liferay in a production environment, on Tomcat, Mysql. Also with JBoss app server. Developed a custom automated deployment Shell and Perl scripts. Experience in Liferay's roled-based system (communities, organizations, etc). Portal administration. Very familiar with Liferay's database schema. Very familiar with Liferay quirks / issues. Also created local and remote services for Liferay. Have utilized Liferay's web-services , such as the User service, from remote clients.

- Part of a team to implement internal Service Oriented Architecture (SOA). Create Web services. Two parts: back end, internal services in Axis2, and also customer-facing web services using LIferay (Axis 1.5). This was development in Java, SOAP/XML/HTTP
- Oversee regular deployments to customer portal (create RPMs, test in lab, co-ordinate production deployment).
- Explore / resolve Liferay security vulnerabilities. (SQL Injection, Cross-site scripting)
- Direct / co-ordinate software development efforts of others, as related to Liferay portal.
- Created several scripts to automate packaging and deployment of portal.
- Automated regression-testing of portal, using Selenium. The test/deployment tools were developed in Java.
- C / C++ / Perl development – enhancement of in-house provisioning tool that configures Citrix Netscalers.
- C progamming (client-server , socket), Mysql.
- Lead interviewer for new hires.
- Mentor others
- Basic sysadmin of linux desktop, laptop.
- Several projects required setting up virtual machines (vbox, vmware)
- We used subversion as our code repository
- In the course of the projects, and the daily business, worked very regularly with HTTP, DNS, SMTP, SSL, TCIP/IP, Ethernet.

Technologies: C, C++, Ubuntu, CISCO routers, Spring, Hibernate, Fedora, Centos, Linux, MySQL, Eclipse, Portlets, Liferay, JSR 168, JSR 286, velocity, javascript, bash shell scripts, Perl, Java, OOA, OOD, OOP (object oriented programming), Selenium, Axis2, Tomcat, ssh, scp, Expect, vi, sed, awk, regex, XML, Maven, tcpdump, nmap, SQL Injection Penetration Techniques, Citrix Netscaler

TRACFONE.COM, FL   **Jun 2009 – Apr 2010**
Sr Software Engineer (Unix)
- Enhanced existing enterprise-level middle-tier infrastructure batch process (Java), greatly improving throughput, reliability, and increasing flexibility by having it able to receive inputs from new sources such as databases and JMS queues, extracting client XML data and handing it off to other services, all based on XML-based processing

rules (in-house XML-based programming language). This project was extensive Java development.
- Continuous improvements by automating previous manual business processes.
- Active participant in full-cycle development from requirements analysis through design, implementation, unit test, integration test, user-acceptance, deployment and maintenance.
- Mentor others in Java and Unix.
- Migrate complete java-based system (middle tier – batch processing system) to Windows Cygwin for ease of development.
- Csv2xml, xml2csv conversion scripts (handle data errors)(Perl)
- TCP socket client (simple browser)(C/C++, cygwin)

Technologies: Perl, C/C++, BEA Weblogic, Java, Oracle, Spring, Eclipse, CVS, SQL, SunOS, Cygwin, XML, XSLT, shell scripts, maven, Apex, PL/SQL, SOA

FOXCONN.COM, FL   **Jul 2008 – Dec 2008**
Sr Software Engineer
The company is an engineering design center tasked with producing the next generation of higher tier mobile handsets. I was involved in two departments: Applications Development and Testing/Tools Development.
- Research / assist Testing/Tools department automated test tracking tools, and and procedures
- Develop Android / Java applications –
  - desktop app with virtual thumb pad, (replaces wheel); pan across desktop, zoom in / out
  - a paint app, using virtual thumb pad

Technologies: Agile methodologies, Java, Ubuntu, Linux, shell scripts, XML, Cygwin, SQLite, android, Junit, Positron, automated testing, Eclipse, ant

RESULTSPOSITIVE.COM, TX   **Nov 2007 – Jun 2008**
Software Development / Client Consulting
The company is a partner of HP/Mercury ITG PPM product. Been consulting with a client (Terex.com), assisting them in using the PPM product suite for software deployment across their enterprise.
- Configuration of PPM involves working with JBoss (PPM is a JEE web application on that engine), Oracle database, shell scripts that run Cygwin, Linux, or SunOS.
- HP's PPM exposes some of it's functionality as web services (SOA). Developed a web services JEE client application to utilize these services, using Tomcat and JBoss JSP engine to serve up the web forms and result pages, the Spring framework to easily employ the MVC pattern, which includes producing straight Java controller classes, JSP views , XML descriptors and resource(properties) files, etc., using Rampart for WS-Security (SOAP messages), Axis2 to generate and use the SOAP stubs code from

the WSDL, SOAPSONAR used to monitor the SOAP messages to / from client to web service, and development is with Cygwin on Windows and using Ant to build, deploy, etc.

- The PPM Expense report development consists of adding JSP pages to interact with the JSPF code (SQL) that includes parameters to pull the data and then generate/display very professional tabular expense reports using HTML, cascading style sheets (CSS)
- All these projects followed a very light-weight, iterative, software development method, with constant team communication including end-user requirements.   These were very dynamic , fluid projects in that user requirements were being finalized only as they were able to use the various application interim releases.

Technologies: JEE, CSS, SOA, Agile methodologies, sqlplus, client-server, n-tier, Java, JSP, Spring Framework, rampart, Linux, shell scripts, XML, SOAP, Axis2, JNDI, JBoss, SOAPSONAR, TCPMON, Unix, Cygwin, vi, grep, find, sed, tr, Oracle 10g, SQL, SunOS, HTTP

GDS LINK   **May 2007 – Aug 2007**
Software Consultant (full-life-cycle development)
This is an off-site, remote position. Travel to client site once a month.

- Used very light-weight, agile methods to conceive, design and deliver an XML-configurable server that will link clients (banks, credit bureaus, etc) to GDS's automated risk-management rules engine. The server establishes the following types of communications on the client-side:
  1. TCP sockets
  2. UDP datagrams
  3. SOAP/http as web-service
  4. JDBC to remote data sources
  5. Converts to RMI using JNDI/LDAP, and vice-versa.
- This application employs Java, interfaces, reflection for run-time dynamic class-loading, is very multi-threaded, extensible and distributed (n-tier), using JNDI for locating and decoupling of resources (clients from servers),

Technologies: client-server, n-tier, Java, JMX, SOAP, Axis2, JNDI, RMI, SDLC, Cygwin, ApacheDS, LDAP Studio, JXExplorer, Oracle 10g, JMX, multi-threading

PUTNAM INVESTMENTS   **Aug 2004 – Nov 2006**
Sr Software Engineer
Enterprise application integration development for a securities trading system. Full software development cycle including specification, analysis, implementation, configuration management (source code repository), testing, documentation, delivery and support.

- Developed a complete set of test jigs with Java classes to exercise and simulate certain portions of the trading system.
- This job was heavy C/C++/Unix software development. Full cycle (SDLC)

- On-call Technical Support - 24x7 trading system
- Updated order-routing rules so that when a trader is out, another can handle the orders.
- Activated and de-activated brokers
- Provided ad-hoc reports on brokers, portfolios, trades, orders
- Updated securities information, such as the ticker and/or cusip
- Implemented new, automated processes and jobs, such as monthly emailed reports
- Troubleshot autosys job failures
- Assisted in production turnovers (software upgrades)
- Produced a basic .NET Education Guide, to be used in training the in-house developers.

Technologies: SDLC, Oracle, PL/SQL, triggers, stored procedures, autosys jobs, Unix (SunOS), Linux, C, Java, Eclipse, TOAD, X/Motif, sqlplus, shell scripts, awk, sed

ASSURANT SOLUTIONS   **Apr 2004 – Jul 2004**
Software Developer
- Developed the charge-back portion of a web-based IT financial application.   Key role from the beginning, including initial requirements-gathering with client, use-case discovery and elaboration, short development cycle project planning, analysis & design, implementation and unit test.

Technologies: SQL scripts, SDLC, OOAD, Test-first, NUnit, Rational XDE .NET, ASP.NET, VB.NET, MS Visual Studio .NET, Oracle, PL/SQL, Configuration Managment, MS Visual Sourcesafe, UML, round-trip engineering, Data Modeling, data normalization, WinXP, feature-driven development (FDD), extreme programming, agile modeling, RUP.

MOTOROLA, FL (2nd stint here; <mark>see further down</mark>)   **Jun 2002 – Dec 2003**
- Cut test cycle time by over 75%
- Cut errors by over 75%
- Released system ahead of time, under budget
- Mentored others on Java, OO, SQL.

Activities:
- Developed Automated-Testing Platform for mobile/wireless phones.
- Code reviews.
- Joint application design sessions (JAD) employing UML and using Rational Rose.
- Prototyping – build GUI pieces using Java/Swing or underlying modules quickly and use them to firm up existing requirements or establish new ones. Also used to discover required efficiency improvements.
- Establish, design system architecture and public interfaces – establish separation of concerns; this also allowed for easy division of labor to different individuals
- Plan releases – limit scope and produce system releases on short cycles (2wks to 1 month)
- Iterative, incremental process – short cycles, grow system, peer review, pair programming, implement unit tests first; similar to Extreme Programming.

- Mentoring, knowledge transfer – As a contractor, need to bring in-house personal up to speed on project, methods, technology and process
- Designed and implemented a dynamic state-machine within the database, using mySQL. Interfaced to the middle/business layer with JDBC.
- Integration – design the 'glue' or method of transferring information from system under development to the reporting / tracking system.
- Technologies: Design Patterns(singleton, MVC, bridge, wrapper, adapter, fascade, others), Unix(Solaris, SunOS, Cygwin), SQL scripts, SDLC, OOAD, Test-first, Configuration Management, Rational ClearCase, Rational Rose, UML, round-trip engineering, Data Modeling, Java, Swing, multi-treading, JDBC, mySQL, data normalization, WinNT, shell scripting, GNU, gcc, RS232 serial comm., socket programming, cross-platform development, client-server development, feature-driven development (FDD), extreme programming, agile modeling.

Lead Software Developer / Architect
Core Java

XCELERATE, SPHERION   **Jan 2002 – Mar 2002**
Consultant
(go to www.spherion.com and click the "locations" link to view sample work)
- Provided software consulting services, including module architecture, Java bean development, provide Java expertise in areas such as JEE, JSP, servlets.
- Built the local office locator functionality. Included querying the datastore for the initial search criteria (and caching it), and standard advance search and presentation techniques of the results (summaries then hyperlinks to details. This included setting up a datasource for WebSphere to use with data-connection pools. Built EJBs.
- Developed an embedded browser function into the site. All requests/responses were routed through the embedded browsing function. Used session beans.
- Built a site crawler Java Bean to test all links on a page and determine whether http, mailto, onsite, offsite, invalid, etc. This assisted in knowing bad, missing links.

Technologies: Java, JSP, JEE, Servlets, EJB, IBM Websphere App Sever 4.0, Webshpere Developer Studio, Design Patterns, JDBC, HTML, XML, Java Beans, C++, Unix., MS SQL Server, DB2

PFIZER, Groton, CT (pharmaceuticals)   **Nov2001 – Dec 2001**
Consultant
- Provided software development life-cycle expertise, specifically in the Rational Unified Process, and tailor the process to incorporate FDA regulatory requirements, which include activities related to 21 CFR11, and also evaluating off-the-shelf-commercial-software (COTS).
- Mentored in-house staff in Rational Rose.

Technologies: RUP, UML, Rose, RequisitePro

PROPROJECT, Ft Laud, FL   **Sept 2001**

Software Consultant
- Developed complete physicians' online, searchable profiles, which are part of <u>Boca Raton Community Hospital's</u> website.
- Developed the WebPages, business logic and data layers.

Technologies: Requirements, Analysis, Design, Implementation, Test, Deployment, OOD, OOP, PHP, SQL scripts, mySQL, Unix(Linux,FreeBSD), Perl, shell.

J.M.FAMILY, Deerfield, FL   **Nov 2000 – Jun 2001**
 Consultant
- Developed several new enterprise-level systems and integrate to each other and to legacy systems.
- Roles were: Trainer, Senior Object Modeler, A&D Group Facilitator/Leader, Architect, Rose Expert (UML & OO)
- There were four design groups of aprox 6-8 people each. Total for project was over 50 people
- Produced and conducted in-house training seminars on object-oriented analysis & design, iterative/incremental development process (RUP), use-cases
- Led and facilitate requirements discovery and analysis sessions (JAD)
- Established, documented work-flows within and between systems – use this knowledge in designing architectures
- Identified, group and elaborate use-cases
- Prioritized use-cases, by architecturally significance and risk
- Built initial prototypes using JEE, EJB, JSP, servlets, mySQL, and Orion app server.
- Integrated various groups' models into master model

Technologies: Business Modeling, data normalization, UML, OOA, OOD, OOP, Rational Rose, Erwin, Visio, Visual Sourcesafe, SQL scripts, JEE, EJB, JSP, Servlets, reverse engineering (round-trip), Requirements, Analysis, Design, Implementation, Versioning, Application prototyping, JDBC, RMI, mySQL,Unix, Unix(Cygwin), shell scripts, Perl.

<mark>MOTOROLA FL</mark>   **Oct 1999 – Nov 2000**
Sr. Software Development Consultant
- Code reivews.
- Mentored other programmers on subjects such as Unix, OO, and Java.
- **Produced an automated test platform** used for regression-testing of firmware releases. Different versions were produced: one Unix-based using C++/C, then ported to WinNT and VC++, and one Java-based.

Technologies: SDLC, RUP, Use-Cases, Sequence Diagrams, Inception, Elaboration, Construction, Transition, Requirements, Analysis, Design, Implementation, Test, Configuration Managment, Object Models, Rational Clearcase, Rational Rose, UML, OOA,OOD,OOP, round-trip engineering, Data Modeling, Java, Swing, JDBC, SQL scripts, mySQL, Unix(Solaris, SunOS, Cygwin), WinNT, Visual C++, C++, Perl, shell scripting, Tcl/TK, GNU, gcc, IEE488 protocol, RS232 serial comm., cross-platform development, n-tier Web development, mentoring

Technology Control Services, Ft. Lauderdale, FL (telecomm)   **Apr 1999 – Oct 1999**
Software Development Team Lead
- Mentored others in first-tier programming (JSPs, serlvets, etc)
- Sole developer for the 2nd tier (business logic, business object-to-relational database conversion)
- Wrote PL/SQL store procedure and triggers for the database tier.

Technologies: SDLC, True Dec 64 Unix (Linux,Cygwin,Dec), Apache, Jserv, Perl, shell scripting, GNU, gcc, Oracle 8i, PL/SQL, stored procedures, triggers, OOAD, OOP, Java, JDBC, JSPs, Servlets, Applets, HTML, WinNT, IBM Visual Age, SMTP, sockets, TCP/IP, FTP, cross-platform development, n-tier Web development, middle-tier, mentoring

INTERMEDIA COMMUNICATIONS, Tampa, FL   **Apr 1998 – Apr 1999**
(telecomm; end-to-end VPN provider)
Data Modeler, System Integrator, Software Engineer
- Integrate several enterprise-level legacy systems.
- Established and defined a common data dictionary of business objects across various systems
- Discovered, formally specify workflows between systems
- Developed system integration 'glue' (We built an in-house message queue using Oracle tables, tasks and job-engine)

Technologies: SDLC, Oracle 8i, Oracle Application Server, SQL scripts, PL/SQL, stored procedures, WinNT, Unix(Solaris), Oracle Forms, SQL*Plus, Oracle Designer, HTML, Cygwin , GNU, C++, gcc, Perl, Tcl/Tk, OOAD, OOP.

WATKINS MOTOR LINES, Lakeland, FL   **Oct 1997 – Dec 1997**
Consultant
- Provided mentoring on Unix to the in-house staff.
- Object-oriented analysis, implementation, and testing of a shipment-tracking application.

Technologies used: SDLC, OOA, OOD, OOP, IBM DB2, SQL scripts, Unix(AIX), C, C++, ESQL, Rational Rose, UML, Perl, shell scripting, gcc.

APOLLO INTERNATIONAL, Apollo Beach, FL   **Feb 1997 – Sept 1997**
Developer
- Responsible for a PC based GUI administration application. This tool was used by field personnel to configure the company's main product, which was an embedded controller used on very large, industrial motors and power distribution grids.
- Full life-cycle development, tool research and evaluation, recommendation.

Technologies used: OOAD, OOP, VC++, Win32 SDK, RS232 serial comm., MODBUS protocol.

GTE Data Services (now Verizon), Tampa, FL   **Sept 1996 – Dec 1996**
- A member on a team of 20+ developers tasked with developing a labor-dispatching system.
- Developed the 2-tier (presentation-business logic, database) system, conducted requirements reviews, design, code, test, integration, code reviews.

Technologies/Skills used: C, Unix (AIX), Xlib/Xt/Motif, shell scripts, SQL scripts, Informix.

PROTEL, INC, Lakeland, FL   **Feb 1988 – Aug 1996**
Developer
- Developed an automated-testing platform to do performance-limit testing against the company's main commercial software system. The test platform simulated 120,000+ remote terminals. Written in C/C++/Unix.
- Produced embedded, low-level (machine-language) (assembly), and high-level (C, C++) software and hardware, including automated testing tools.

Principle developer of a key commercial software system for a large telecomm company.

Technologies/skills: Digital/analog circuit design, breadboarding, scopes, meters, analyzers, DOS, BIOS x86 assembly programming, event loop programming, 6502 assembly embedded programming, parsers, AIX, HP-UX, Solaris, SUNOS, Unix SVR4, SCO, Unixware, Informix, SQL, C, Perl, Tcl/Tk, Xlib,Xt,Motif, C++, OOD, OOP, shell scripts, full-cycle software development process, IPC(queues, shared mem, pipes, etc),multi-processing.

MITEL, INC, Boca Raton, FL (telecomm)   **Apr 1979 – Dec 1987**
Technical Training Coordinator – Guide the efforts of a group of trainers in developing written and video courses for electronic technicians.   Courses covered the electronic theory of operation on various equipment, down to the component level.
Supervisor – Oversaw efforts of 10 employees. Responsible for the intake, testing, repair and shipping of all equipment returned from customers.
Lead Electronic Technician – Oversee the efforts of several technicians in their troubleshooting and repair of electronic circuit boards. Mentor them on difficult circuit operations.
Electronic Technician – Troubleshoot electronic circuit boards. These contained microprocessor circuits, digital circuits, analog circuits.   Employ logic analyzers, write and execute machine-language routines, utilize scopes, meters, and other equipment to pin-point the faulty component(s).

EDUCATION

UNIVERSITY OF SOUTH FLORIDA, Computer Engineering, GPA 3.87 , 1992 – 1998 , 59 CREDIT HOURS
BROWARD COLLEGE, Pre-Engineering, GPA 3.95, 1981-1990 , 64 CREDIT HOURS
TOTAL CREDIT: 123 HOURS, OVERALL GPA : 3.87