William M. Hasling

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PROFILE

After leaving Geneia I created Stem-Practice, a web based product to assist teachers as an automated tutor for mathematics oriented topics such as math or physics.

I was the Director of Enterprise Data Architecture at Geneia, a spin-off from Capital Blue Cross insurance company. I created the software architecture and infrastructure of our new products and led teams of people globally distributed in the US in India. We developed the Theon family of products that provided analytics of health care data. We used data science algorithms to create daily insights for clients with 6 million+ members.

I was a Software Architect in the Business Intelligence group at Cerner Corporation. I was the architect for several large projects that leverage the use of a data warehouse of patient medical information of both financial and clinical data.

I have years of experience working at Siemens in software engineering research and software consulting. My research experience was primarily in software testing. My consulting experience ranged from assisting Siemens companies with problems related to all aspects of software engineering, including testing, design modeling, and process improvement, to special project development. I have a Siemens certification of SSWA (Senior Software Architect).

I have led teams of people and worked in distributed teams (e.g. India, Europe). I collaborate effectively with stake holders: product strategists, interface designers, test managers, and company management. I am a highly productive developer and valued as a mentor by my teams.

RELEVANT EXPERIENCE

Stem-Practice, Princeton, Jct. NJ
Founder/Developer 2021- Present

- Developed a web based product to assist teachers as an automated tutor for mathematics oriented topics such as math or physics. Allows students to enter math answers and typographically formats expressions as they type. It analyzes answers, providing hints and suggestions and collects data for use by teachers.
- Built in Python and JavaScript using the latest server-less technology. Since both web-server and repository are in the cloud and server-less, the deployment costs are insignificant at low volume and infinitely scalable.
- Portable on both AWS (lambda and S3) and Azure (functions and blobs) with interfaces to isolate cloud vendor dependencies.
- Deployment with npm and rollup. Unit testing with ava and Python unit test. Static analysis with eslint, Local testing with node express. Security with JWT and integration with Google login.
- Uses the latest UI technologies with ES6 JavaScript, Web-Components, Shadow Dom, Template Literals, CSS shadows, lighting and CSS animations for transitions.
- Available at https://stem-practice.com

Geneia Corporation, Harrisburg, PA
Director Enterprise Data Architecture 2017- 2021

- Created software architecture using AWS Cloud to ingest patient data from multiple input sources and normalize the data, execute data science algorithm to create insights and format the data to be used by a variety of different user interface reporting systems.

- Product was portable SQL using Python infrastructure to call SQL to make the SQL portable and maintainable. Leveraged Snowflake and Vertica columnar store databases for scalability. Various user interfaces including a .NET web based UI, Salesforce UI and reporting solutions with both Tableau and SiSense.
- Data science code was Python panda data frames using scikit and other libraries. Data science development with Jupiter Notebooks, production deployment with Python pandas and scikit libraries.
- The new architecture I created for Geneia reduced their analytic processing time of monthly data loads from 22 days to 24 hours (20+ times faster) as well as adding new UI interfaces and new features.

Cerner Corporation, Malvern, PA
Software Architect 2015- 2017

- Architect for several large Java projects leveraging the use of a data warehouse of patient medical information of both financial and clinical data.
- Designed a solution for a Ruby on Rails project integrating into the Cerner Cloudera big data repository deploying with Docker.
- Provided support as an internal expert supporting the US government "meaningful use" standards representing patient medical information.
- Designed a KPI (Key Process Indicator) solution that allowed clients to create custom KPIs through a web based UI using a high level model of measures and dimensions integrating with the company's data warehouse and product dashboard. The company used the product to define useful model KPI's to increase the value of the warehouse for clients. The product used a commercial web based graphics component to display KPIs. I designed a solution that computed and cached the KPIs defined by our model in background to provide instantaneous display of KPIs even for complex measures and dimensions using high volume data. The model also allowed clients to link between KPIs to drill down to causes of issues.
- KPI project used AngularJS, Java, Apache Spring, JavaScript, Mongo DB, MS SQL Server, JSON REST services, Junit and Jasmine for testing. Crucible for code reviews. Jira for agile scrum management and defect tracking. Jenkins for continuous integration.
- Architect for a product that allowed Cerner/Siemens to provide a service to clients to satisfy the government "meaningful use" standards. Our product had to support 3 different EMR (Electronic Medical Record) products loaded into our warehouse. Most of our competitors were implementing the measures by hand and re-implementing as measures changed. I designed a solution to parse the .xml that formally defined the measures and created a model for normalizing the clinical data in the warehouse to automatically evaluate the measures and produce the required output standards.
- Implemented the “meaningful use” project in Java with Apache Spring. JSON REST services, JQuery/Backbone libraries for UI. MS SQL Server with SQL generators and some stored procedures. Junit for testing, Version One for scrum management. Crucible for code reviews. Cruise Control for continuous integration. Delivery of content using SAP Business Objects tools. Development with distributed team in India and US.

Siemens Medical Systems, Malvern, PA
Software Architect 2014- 2015

- Re-architected a struggling innovative Java based clinical data analytic product with 5 clients into a commercially successful product with 100 clients. I introduced an automated testing framework and then helped the team refactor the internal system to improve quality, performance and maintainability.

Siemens Corporate Technology, Princeton, NJ
Researcher/Consultant 1986- 2014

- Performed research in software engineering topics - primarily in software testing - especially automated test generation.

- Consulting with Siemens companies with problems related to all aspects of software engineering including testing, design modeling, process improvement to special project development.

Teknowledge Corporation, Palo Alto, CA
Software Engineer 1984- 1986
- Member of a team developing knowledge engineering tools, the company's primary products.
- Key engineer responsible for delivering S.1, the first commercial expert system development tool written in C instead of Lisp. This product helped the company launch its successful initial public stock offering.

EDUCATION

University of California, Berkeley, Berkeley, CA
Master of Science, Computer Science/Electrical Engineering

University of California, Los Angeles (UCLA), Los Angeles, CA
Bachelor of Science, Computer Science/Mathematics
Magna Cum Laude, Phi Beta Kappa

RELEVANT PUBLICATIONS

- **Experiences using Tedeso: An Extensible and Interoperable Model-Based Testing Platform**
2012 Automated Software Engineering

- **Applying Model-Based Testing to Healthcare Products: Preliminary Experiences**
May 10, 2008, 30th International Conference on Software Engineering (ICSE 2008), Leipzig, Germany

- **Model Based Testing of System Requirements using UML Use Case Models**
Apr 9, 2008, ICST '08 Proceedings of the 2008 International Conference on Software Testing, Verification and Validation

PATENTS

Gap in Care Determination using a Generic Repository for Health Care,
Issued Jan 21, 2020 Patent number US 10,540,448.

Business Management System and Method for a Deregulated Electric Power Market with Sharing of Supply Chain Data, Issued Aug 17, 2004 Patent number US 6,778,882,B2

Business Management System and Method for a Deregulated Electric Power Market Using Online Diagnostic Services, Issued May 4, 2004 Patent number US 6,732,019,B2

SKILLS

I have a broad background of skills in languages and technologies recently including:

Languages: Python, JavaScript, SQL, GoLang, CSS, HTML, Java, C, C++, C#, Visual Basic, Ruby, Perl

Platforms: AWS, Azure, Google Cloud, Apache Spring, J2EE, Ruby on Rails

Web Technologies: Web Components, ReactJS, NextJS, NodeJS, Angular, JQuery, Backbone, Jasmine, Ava

Agile Scrum Tools: Jira, Version One

Healthcare IT Standards: CDA, QRDA, HQMF, CQL

ETL Tools: SSIS, knowledgeable about others

OS: Windows, Linux

Cloud: AWS services: Lambda, API Gateway, Route53, EC2, S3, Dynamo DB, IAM, Docker, Azure
Azure: Functions, Blob Storage Accounts

Interests: Deep Learning Neural Network Technology

Hobbies: Tennis, Biking, Kayaking, Juggling

Volunteer: Scoutmaster of a Boy Scout troop of 80 boys + parents for 8+ years,
Soccer coach, Baseball coach, many scout related service projects.