

ATA MOHSENI

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Objective:

To apply for full-time data science position where I can contribute to developing innovative data-driven solutions.

Education

UCSD GSR, Structural Engineering specialization Computational Science and Mathematics (CSME)
(GPA: 3.91) (09/17 – 12/20)

UCSD M.S. Structural Engineering (SE)

UCSD B.S. Structural Engineering (SE)

Cum Laude (GPA: 3.75) (09/13 – 06/16)

Experience

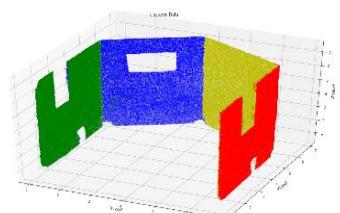
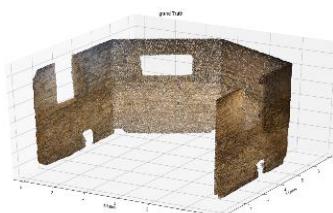
Graduate Student Researcher UC San Diego:

(09/2017 – 12/2020)

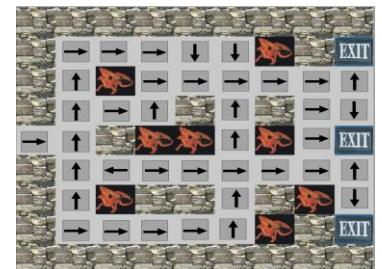
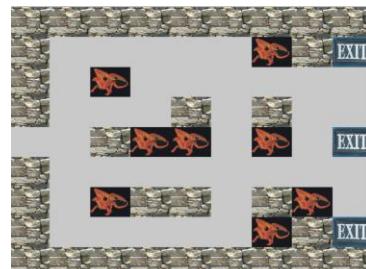
<https://chei.ucsd.edu/>

Related Projects:

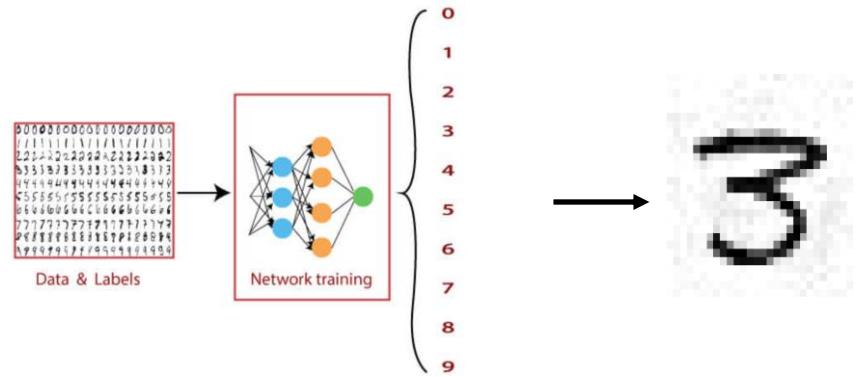
- Implemented and evaluated the self-tuning spectral clustering on large and noisy multi features point sets to perform the material segmentation and building component segmentation.



- Used policy and value iteration methods to find the Optimal Policy for an agent to solve a 9x9 maze



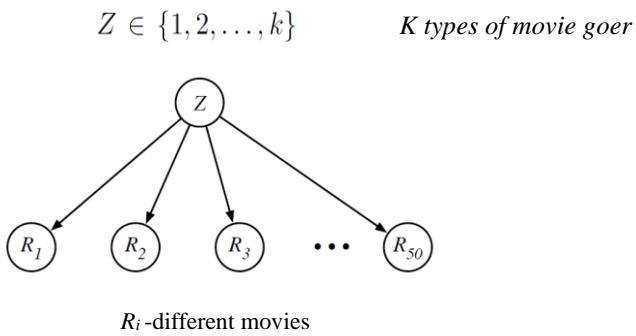
- Generated adversarial examples using gradient ascent on loss function of trained Convolutional Neural Network on MNIST data to improve network classification performance.



$$\frac{\partial L}{\partial x} = \frac{\partial L}{\partial h^0} = \frac{\partial L}{\partial z^4} \frac{\partial z^4}{\partial h^3} \prod_{i=1}^3 \frac{\partial h^i}{\partial h^{i-1}} = \frac{\partial L}{\partial z^4} \frac{\partial z^4}{\partial h^3} \prod_{i=1}^3 \left(\frac{\partial h^i}{\partial z^i} \frac{\partial z^i}{\partial h^{i-1}} \right)$$

$$\begin{aligned} z^i &= h^{i-1} W^i + b^i \quad \text{for } i = 1, 2, 3, 4 \\ h^i &= \text{ReLU}(z^i) \quad \text{for } i = 1, 2, 3 \\ p &= \text{softmax}(z^4) \end{aligned}$$

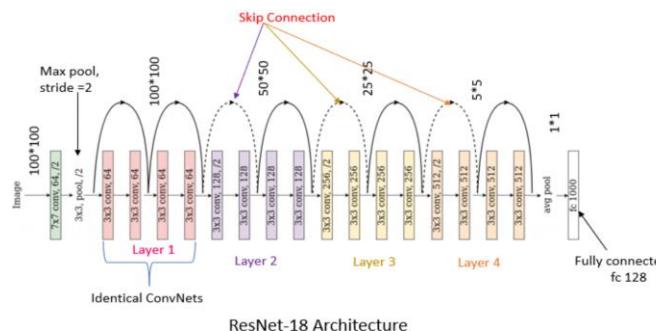
- Created a movie recommendation algorithm for unseen movies based on people's partial movie ratings using EM algorithm (modeled with Knowledge Graphs and Conditional Probabilities Tables)



$$P\left(R_\ell=1 \mid \left\{R_j=r_j^{(t)}\right\}_{j \in \Omega_t}\right) = \sum_{i=1}^k P\left(Z=i \mid \left\{R_j=r_j^{(t)}\right\}_{j \in \Omega_t}\right) P(R_\ell=1 | Z=i) \quad \text{for } \ell \notin \Omega_t.$$

Ω_t : set of movies seen and rated by t^{th} person

- Used Transfer Learning to classify diseases from Chest X-ray image data



num_epochs	3
batch_size	32
learning_rate	0.001
seed	np.random.seed(1)
p_val	0.1
p_test	0.2
optimizer	Adam
criterion	BCEWithLogitsLoss()
network	resnet18
initialization	Xavier
threshold	0.18

Graduate Research Assistant at NHERI UC San Diego

(Summer 2017)

- Developed a numerical non-linear finite element dynamic analysis model (used Tcl programming language interacted with open-source finite element software OpenSees) that accurately predicted dynamic earthquake response of a 2-story wood building.

<http://nheritallwood.mines.edu/education.html>

Student Engineer at City of San Diego

(10/2015 - 07/2016)

- calculated and updated the cost estimation through the project for construction of a joint trench and conduit in over-ground to underground utility conversion projects
- Evaluated project scheduling conflicts and delivered resolutions to project managers.
- Detailed several traffic design drawings using MicroStation

Related Skills

Python, TensorFlow, PyTorch, MATLAB, R, Tcl, SQL, FEA, Microsoft Office, LaTeX

Related Coursework

- | | |
|--|---|
| <ul style="list-style-type: none">• Applied Statistics (MATH 282 A-B)• Numerical Optimization (MATH 271A-B-C)• Computer Vision (CSE 252A)• Probabilistic Reasoning and Learning (CSE250 A)• Learning Algorithms (CSE250 B) | <ul style="list-style-type: none">• Neural Networks Pattern Recognition(CSE 253)• Machine Learning for Geometric data(CSE 291)• Large Scale Optimization (MATH 277A)• Reliability & Risk Analysis (SE 224)• Stochastic Process (MATH 285) |
|--|---|

Honors and Award

- First place in Tennessee Mathematical Association of Two-Year Colleges state-wide calculus contest.
(February 2011)

<http://volunteerstatecommunitycollege.blogspot.com/2011/01/so-you-think-math-is-hard.html>

Affiliations

- Member of Tau Beta Pi, California Psi. Engineering Honor Society