TECHNION | COMPUTER SCIENCE DEPARTMENT

Summer Internships for MSc&PhD Students 2019

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IBM	Scaling AI for the Real World
IBM	Intern for the Deep Learning team in Computer Vision and Augmented Reality group
IBM	Summer intern in the Speech Technologies group
IBM	Adaptable neural speech synthesis
IBM	Multimodal and self-supervised deep-learning of speech

IBM	[Deep-learning based clustering for speaker analysis](#)
IBM	[Intern for Audiovisual Video Analytics with Deep Learning](#)
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Microsoft

Research Summer Student – Microsoft's Recommendations Team

Company: Microsoft

Position (title of the project): Research Summer Student – Microsoft's Recommendations Team

Job description: The recommendation team in Israel is a fast-growing team responsible for designing and building recommendation algorithms for a wide array of Microsoft products such as Xbox Games, Xbox Movies, Windows Store, Retail and much more. We develop cutting edge machine learning algorithms that serve tens of millions of users around the globe.

We are looking for summer research students to join one of the best machine learning groups in the country. In this internship you'll get to work with world class machine learning researchers and help develop real-world machine learning algorithms serving millions of users worldwide. If all goes well, at the end of the internship we aim to publish a paper that summarizes the work that was done.

Required skills: Qualified candidates meet the following requirements:

- Ph.D. student preferably in one of the following fields: Machine Learning/ Information Retrieval/ Data Mining/ Natural Language Processing/ Text Mining/ Search or related.

- Hands on experience working with large data sets.

- Good knowledge of machine learning / data mining algorithms and techniques.

- Good knowledge of statistics.

- Excellent coding skills.

- Passionate about machine learning algorithms and statistics.

- Team player and enthusiastic.

Contact details: To apply please enter this Link

Facebook

Software Engineering Internship

Company: Facebook

Position: Software Engineering Internship

Job description: Facebook's mission is to give people the power to build community and bring the world closer together. Through our family of apps and services, we're building a different kind of company that connects billions of people around the world, gives them ways to share what matters most to them, and helps bring people closer together. Whether we're creating new products or helping a small business expand its reach, people at Facebook are builders at heart. Our global teams are constantly iterating, solving problems, and working together to empower people around the world to build community and connect in meaningful ways. Together, we can help people build stronger communities.

Want to build new features and products that touch more than a billion people around the world? Want to build new features that improve existing products like Photos,Groups, Search, and Messaging? Want to solve unique, large-scale, highly complex technical problems? Our development cycle is extremely fast, and we've built tools to keep it that way.

Facebook is seeking interns to join our engineering team in our Tel Aviv office. You can help build the next generation of systems behind Facebook's products, create web applications that reach millions of people, build high volume servers and be a part of a team that's working to help connect people around the globe.
This has a minimum twelve (12) week duration. Our Tel Aviv office is located in a prime location on Azrieli Sarona Tower.

We provide corporate housing in TLV for the full internship period and fun atmosphere for you to work in, allowing you to have all the creativity you need to launch your career.

Required skills: Graduation Date 2020/2021

Responsibilities:

- Code high-volume software using primarily C++ and Java
- Create web applications using primarily PHP
- Implement web interfaces using XHTML, CSS, and JavaScript
- Build report interfaces and data feeds

Minimum qualifications:

- Pursuing a degree (Bachelor's or Master's) in Computer Science or a related field

- Experience in C++, Java, Perl, PHP, or Python

- Must be currently enrolled in a full-time degree program and returning to the program after the completion of the internship/co-op

- Must obtain work authorization in country of employment at the time of hire, and maintain ongoing work authorization during employment.

Prefered qualifications:

- Demonstrated software engineering experience from previous internship, work experience, coding competitions, or publications

- High levels of creativity and quick problem-solving capabilities

Location: Tel-Aviv- Azrieli Sarona Tower

Contact details: hbarzily@fb.com

Facebook

Production Engineer Internship

Company: Facebook

Position (title of the project): Production Engineer Internship

Job description: Facebook's mission is to give people the power to build community and bring the world closer together. Through our family of apps and services, we're building a different kind of company that connects billions of people around the world, gives them ways to share what matters most to them, and helps bring people closer together. Whether we're creating new products or helping a small business expand its reach, people at Facebook are builders at heart. Our global teams are constantly iterating, solving problems, and working together to empower people around the world to build community and connect in meaningful ways. Together, we can help people build stronger communities — we're just getting started.

Come be part of a talented team of designers passionate about creating the very best product for Facebook's 2 billion users. As a Product Designer, University Grad, you will be involved in every aspect of the product development process, from brainstorming the next feature of News Feed to tweaking pixels right before launch. You will be expected to utilize your full range of product design, interaction design, and visual design skills, and you will own the experience for a wide area of the Facebook product

Required skills: Graduation Date 2020/2021

Responsibilities:

- Take broad, conceptual ideas and turn them into something useful and valuable for our billion users

- Design flows and experiences that are incredibly simple and elegant

- Contribute to high-level strategic decisions with the rest of the product and executive teams

- Give and solicit feedback from other designers in order to continually raise our bar for quality

- Partner with Product Managers, engineers, researchers and content strategists to oversee the user experience of a product from conception until launch (and then some)

Minimum qualifications:

- A strong portfolio featuring examples of interaction design work

- Ability to think at a high level about product strategy and vision (not just 'how it should look' but 'what we should build')

- Proven ability to execute on visual and interaction details

- Communication skills – you should be able to articulate your design decisions in both Hebrew and English

- Experience in web and mobile application design

- Pursuing a Bachelors or Masters degree in a design related field

Location: Tel-Aviv- Azrieli Sarona Tower

Contact details: hbarzily@fb.com

Intel

Intel Sport

Intel Sport is a dynamic and creative group with a start-up atmosphere within Intel. At Intel Sport we are developing the future of volumetric video, using True View Technology (Free Dimensional Video), which is an entirely new concept for capturing live events. Our technology enables the users to immerse themselves with live videos. For example, our technology enables an entirely new viewing experience during live sports games, like the Super Bowl, Football, NBA and more!

Watch this to see what we do:https://www.youtube.com/watch?v=J7xIBoPr83A

Check here to learn more about us: https://www.intel.com/content/www/us/en/sports/sports-overview.html

summer internship projects: Intel Sport

- Generative adversarial networks for enhancing the quality of synthetic images.
- 2D object segmentation in high resolution videos.
- Non-linear regression with deep neural networks in computer vision.

>> Apply to Intel's summer internship here

Intel

Artificial Intelligence Products Group (AIPG) and AI Labs

The Artificial Intelligence Products Group (AIPG) is developing breakthrough technologies that will lead the next evolution of computing by offering end-to-end AI solutions that broadly span from the data center to the edge. The group focuses on Deep Learning software and hardware technologies dedicated for state-of-the-art inference and training techniques, and state-of-the-art research and development in the field of artificial intelligence.

Our research focuses on development in the fields of reinforcement learning, probabilistic deep learning and neural network compression, natural language understanding, and neural network optimizations.

We have open sourced three research frameworks:
Reinforcement Learning Coach
Neural Network Distiller
NLP Architect

Accepted papers from this year's NeurIPS 2018
- Constructing Deep Neural Networks by Bayesian Network Structure Learning
- Bayesian Structure Learning by Recursive Bootstrap
- Norm matters: efficient and accurate normalization schemes in deep networks
- Scalable methods for 8-bit training of neural networks

AIPG and AI Labs summer internship projects:

- Efficient deployment of neural networks on low precision accelerators
- Precision tuning for end-to-end deep learning speech algorithms
- Intel AI Lab internship (Reinforcement Learning / Neural Network compression)
- Auto-ML - optimize deep learning pre-trained models
- Implement state of the art methods to optimize the Transformer for inference POC

>> **Apply to Intel's summer internship here**

Intel

Mobileye

At Mobileye we know that the idea of a fully autonomous car is no longer science fiction, but a reality that we are creating!
We have spent more than 15 years developing the world's most advanced driver assistance systems, and we are now leading the computer vision and machine learning domain.
We are building a new algorithms team that will be located in Haifa and we are looking for talented advanced degree students to join us

Get a glimpse on RSS, one of the most advanced technologies of Mobileye:
https://www.youtube.com/watch?v=eQ_uGvHlLr4

Mobileye Summer internship projects:
Image Processing Optimization
Human activity recognition using skeleton extracted from 2D images: Employ deep learning methods for activity recognition.
Vehicle tracking using deep learning – Employ convolutional neural networks for tracking of moving vehicles.

*Located in Haifa.

>> Apply to Intel's summer internship here

Intel

Advanced Analytics

Advanced Analytics is a leading group at Intel that develops big data, machine The group provides end-to-end .learning, and artificial intelligence solutions solutions internally to Intel worldwide, as well as products delivered externally, to Intel customers.

The group uses the huge and diverse data related to Intel's own operations to transform the way the company works and create a large value for the company and its customers. Processor design, manufacturing, and sales are leveraging AI methods, including computer-vision, natural language processing, and reinforcement learning techniques.

Accepted workshop papers from ICML and NIPS:

- Deep structured modeling of deep learning training convergence with application to hyperparameter optimization"
- Differentiable Memory Allocation Mechanism for Neural Computing
- Time series processing for software failure prediction in deep learning training
- A feature selection layer integrated within a deep-learning framework
- Automated Testing of Graphics Units by Deep-Learning Detection of Visual Anomalies

Advanced analytics summer internship projects:

- AI for healthcare: Deep-learning based analysis of sensory data for quantifying disease symptoms
- Sales AI: Leveraging NLP and weak supervision to generate insights for Intel's sales agents, based on social media and web info
- Video analytics: Identifying video events and anomalies using deep-learning and computer-vision methods

>> Apply to Intel's summer internship here

Intel

Software and Services Group (SSG)

The team develops binary instrumentation infrastructure for Intel CPUs and GPUs, along with workload and architectural analyses tools. These tools are used to explore and define future CPUs features and optimizations, as well as for analyzing and optimizing software.

The team also owns the SW side of the HW/SW co-design for power and performance features of Intel client and server CPUs, focusing on the deep learning domain.

SSG summer internship projects:

- Create an independent "system layer" software component for PIN (dynamic binary instrumentation framework)
- Develop new Cross-Binary Matching Tool technology, to be used for comparative performance studies for future CPUs

>> Apply to Intel's summer internship here

Rafael

Self-Healing Routing Protocol in Heterogeneous UAV's Based FANET

Company: Rafael Defense Systems Ltd.

Position: Self-Healing Routing Protocol in Heterogeneous UAV's Based FANET

Job description: Research for Routing Algorithm in FANET (Flying Ad-Hoc Networks) based on path information, PHY information and OTA (over the air) control messages. Basic implementation and simulation with testing and analytical report

Required skills:

- Full knowledge in wireless systems (MANET an advantage).

- Capable of producing High level Algorithm design.

- Good programming skills (C++ an advantage).

Full time internship.

Contact

Aviel Glam: (+972)53-3370807, avielglam@gmail.com

Chen Ben-Avner: (+972)54-9986401

Rafael

Research Internship at NEWCIRC

Company: Rafael – Advanced Defense Systems, NEWCIRC – National Electronic Warfare, Cyber and Intelligence Research Center.

Location: David Campus, Haifa area (Some cyber research internship positions are available at Tel-Aviv, HaArba'a Street).

Position: Research intern

Job description: NEWCIRC (SAMLA – in Hebrew) is one of the largest national research labs in Israel. We research and develop a broad range of advanced technologies to meet critical national security needs. NEWCIRC is at the forefront of many of Israel's national security-related research. Our researchers have exceptional technical abilities and creativity, working in cross-disciplinary teams that tackle hard research challenges.

Our focus spans over these main research areas:
- Cyber
- Signal processing algorithms
- Machine learning
- Electro-optics
- Satellite navigation
- Communications
- RF systems
- Navigation, control and estimation theory

NEWCIRC is offering research internship positions in all of the above research areas tackling diverse challenges. You will have the opportunity of work side-by-side with senior researchers on the most valuable research challenges for national security. We can shape your research tasks here at NEWCIRC to align with your PhD/MSc research. Have an idea for a research internship project that may be relevant for national security? Try us out – we might just say yes.

Requirements:

- PhD or MSc student in the above research fields (exceptionally excellent undergrads can be considered).

- Passion to tackle extremely hard research challenges
- Suitable candidates will be asked to undergo minimal security clearance

Contact: ronisho@rafael.co.il

Rafael

ראייה ממוחשבת ולמידה עמוקה

בואו להתמחות קיץ בראיה ממוחשבת ולמידה עמוקה ברפאל!

היכן שכיפת ברזל היא החדשות של אתמול והדבר הבא הוא לא פחות ממדע בדיוני. מוקד הראיה הממוחשבת והלמידה העמוקה ברפאל הוא מהמובילים בתחומו בעולם. בעל מספר רב של חוקרים, ניסיון של עשרות שנים ומוצרים מוכחים ועובדים. עכשיו, יש לך הזדמנות להכיר אותו מקרוב!

אנחנו מציעים התמחות קיץ לסטודנטים לתארים מתקדמים מהפקולטות הנדסת חשמל ומדעי המחשב בתחומי הראיה הממוחשבת והלמידה העמוקה.

במסגרת ההתמחות תתנסו בעבודה על פרויקטים בחזית הידע הטכנולוגי ובחזית הצורך המבצעי. תקבלו חונך אישי מהחוקרים המובילים בתחום שילווה אתכם בכל שלבי הפרויקט. תצברו ניסיון מעשי חשוב ותחשפו לעולם מדהים של עשייה.

לפרטים פנו לנתנאל רטנר 052-8808851

Yahoo Research Lab – Haifa

Part of Oath: a Verizon company

Research intern

Yahoo is now part of Verizon Media - a global house of 50+ brands, which includes well-known brands such as HuffPost, AOL, Yahoo, TechCrunch, BUILD, Engadget and MAKERS and is shaping the digital web and mobile future.

Yahoo is focused on making users' daily habits inspiring and entertaining. By creating highly personalized experiences for our users, we keep people connected to what matters most to them, across devices and around the world.

Yahoo Research is looking for exceptional PhD & MSc students to apply to its intern program for the summer of 2019. We seek world-class graduate students in pursuit of a PhD & MSc in Computer Science, EE, or a related area. Preference will be given to PhD & MSc candidates passionate about Search (ranking, experiences etc.) and Natural Language Processing, Machine Learning (including Recommender Systems and Deep Learning), Scalable Systems, Algorithms, Computer-Human Interaction and Computational Advertising.

About the internship:

Interns are expected to work with our researchers to tackle research challenges, apply scientific thinking and techniques to improve the performance and effectiveness of our products, and solve problems for our users and advertisers by analyzing mountains of data. They will have the opportunity to publish their work and expand the horizons of web science. The internship lasts for 14 weeks, that can be taken between June and November of the same year.

Position requirements:

- Currently enrolled as a PhD/MSc student at an elite university
- Solid coding capabilities in Java/C++/Python and solid knowledge of CS foundations (data structures and algorithms)
- Good communication skills and a creative mind
- Scientific background in areas of interest to Yahoo is an advantage
- Industrial experience is an advantage
- Proven publication record in leading conferences/journals is a plus

• Familiarity with MapReduce/Hadoop is a plus

Internship goals:

The successful candidate will work with our researchers on research projects stemming from real-world Web challenges. This will require both solid development skills and superior analytical skills in order to formalize novel models and approaches at the cutting edge of Internet Science. A successful summer internship might include a submission to a leading conference such as WSDM, WWW, SIGIR, KDD, OSDI or ACL.

Candidates will need to submit a CV & GPA grades plus a letter of recommendation from their graduate advisor.

Please send applications to: omrip@oath.com

Yahoo - Come join us and work with the best professionals out there, enjoy high benefits and have a great working experience!

Amazon

Alexa Shopping, Research

Company: Amazon

Position: Alexa Shopping, Research

Job description: As an intern in the Alexa Shopping Research team, you will work with top researchers and engineers to explore and devise new AI technologies for voice shopping. Your work will combine deep learning, data mining, exploration of new domains, as well as submission of your work to a top scientific conference.

Requirements:

BASIC QUALIFICATIONS

- Second year MSc in Computer Science, or related field.
- Submitted a research paper to a top conference.
- Strong CS foundations (data structures and algorithms).
- Knowledge of programming languages such as C/C++, Java, or Python.
- Good writing and verbal English skills.

PREFERRED QUALIFICATIONS

- PhD candidate in Computer Science, or related field
- Knowledge of AI-related technologies (e.g., Deep Learning, Machine Learning, Web Data Mining, Natural Language Processing, Information Retrieval, Speech, Computer Vision) and cloud technologies (e.g., AWS)
- Good communication and collaboration skills.

Contact details: Tamara Adissi: tadissi@amazon.com

Palanitr

Software Developer: Tel Aviv + London

Company: Palanitr Technologies

Position: Software Developer: Tel Aviv + London

Job description: Software Engineers at Palantir build software at scale to transform how organizations around the world use data. As a Software Engineer, you'll contribute high-quality code to Palantir Gotham or Palantir Foundry: products that are deployed to the most important institutions in the public and private sector. You'll build features used by research scientists, aerospace engineers, intelligence analysts, and economic forecasters, in countries around the world.

Palantir's Product Development organization is made up of small teams of Software Engineers. Each team focuses on a specific aspect of a product: for example, you might be part of a team that builds a Foundry front-end application, or a component of the Gotham release infrastructure. We encourage movement among teams to share context, skills, and experience, so you'll learn about many different aspects of each product.

Software Engineers are involved throughout the product lifecycle, from idea generation, design, and prototyping to execution, and shipping. As a Software Engineer, you'll collaborate closely with technical and non-technical counterparts to understand our customers' problems and build products that solve them. We think the best way to understand what our users need is to meet them, so occasionally, you'll tour the assembly line at an auto manufacturer or join a counter-terror analyst at their desk to really understand their mission and their pain points.

It doesn't matter what languages you know when you join us, but it does matter that you can write clean, effective code and learn new languages quickly. Our software is constantly evolving, so we need engineers who can do the same. Alongside peers who bring diverse experience — startup founders, industry veterans, university TAs, and more — you'll build your skillset to apply the best technology to solve a given problem. Right now, we use:

- A variety of languages, including Java and Go for back end and Typescript for front end

- Open-source technologies like Cassandra, Spark, ElasticSearch, React, and Redux

- Industry-standard build tooling, including Gradle, Webpack, and Github

Whether you aspire to be an entrepreneur or an engineering leader, we believe Palantir is the best place — with the best colleagues — to learn how. You'll learn how to unpack a problem and understand the costs and consequences of its solution. You'll learn new technologies and languages, and even develop them yourself. You'll work autonomously and make decisions independently, within a community that will support and challenge you as you grow and develop.

Requirements:

- Must be planning on graduating in **2020**

- Strong engineering background in fields such as Computer Science, Mathematics, Software Engineering, and Physics

- Must have had technical work experience

- Advanced-level Computer Science coursework, including in algorithms and data structures; experience with Java and/or web technologies a plus

- Familiarity with data structures, storage systems, cloud infrastructure, front-end frameworks, and other technical tools

- Strong coder with demonstrated proficiency in programming languages, such as Java, C++, Python, JavaScript, or similar languages

- Ability to collaborate and empathize with a variety of individuals. You can iterate with users and non-technical stakeholders and understand how your technical decisions impact them

- Demonstrated ability to learn and work independently and make decisions with minimal supervision

- A desire to work on software that can change the world and a passion for creating intuitive, scalable products that augment our users' ability to work with data

Contact details: Israel@Palantir.Com

IBM

Artificial Intelligence for Radiology Assistant

Job description:

Our team is developing a solution called Cognitive Radiology Assistant - A.I based assistant for radiologists. The system analyzes medical images and then combines this insight with information from the patient's medical records to offer clinicians and radiologists support for decision-making.

We are looking for a MSc & PhD student in the domains of machine learning and deep-learning who has a passion for medical domain.

https://www.research.ibm.com/haifa/dept/imt/mia.shtml

Requirements:

- MSc & PhD student with innovative thinking, creativity, and self-learning skills
- Hands on experience in writing code in Python
- Solid background in ML and Deep learning
- Liking to data and experimental research.
- Preference: Experience in PyTourch and /or Experience in Medical Imaging Analytics

Position location: Haifa

Contact details: michalsh@il.ibm.com

IBM

AI for caching

Job description:

Our team is developing a solution called Cognitive Radiology Assistant - A.I based assistant for radiologists. The system analyzes medical images and then combines this insight with information from the patient's medical records to offer clinicians and radiologists support for decision-making.

We are looking for a MSc & PhD student in the domains of machine learning and deep-learning who has a passion for medical domain.

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- Preference: Experience in PyTourch and /or Experience in Medical Imaging Analytics

Position location: Haifa

Contact Details: michalsh@il.ibm.com

IBM

Scaling AI for the Real World

Job description: Building an AI-based application and bringing it to the point where it can bring value to clients is difficult, and requires significant work for each customer. As a result, the vast majority of advanced analytics applications remain one-off implementations, with very low repeatability, and the success rate is quite low. (See https://www.linkedin.com/pulse/can-ai-solutions-scale-meet-potential-segev-wasserkrug.). Therefore, one of the major challenges to widespread adoption of AI is creating AI solutions that can be easily deployed to new customers and scenarios.

Our research on Scaling AI for the Real World aims to develop algorithms, methodologies and tools to support the process of building AI applications in a way that will provide a quick route to value, with following iterative improvements. This will allow the creation of AI-based applications that have a better likelihood of success, and can be easily scaled to meet new requirements and new customers, potentially revolutionizing the adoption of AI in real world applications.

Possible work topics may include:

- A formal methodology and algorithms for measuring and analyzing the trade-offs between the investment required to deploy an AI solution and the benefit it brings.
- Methods for augmenting existing work processes so as to automatically derive the data required to create/augment AI models.
- Research into AI/analytics algorithms that lend themselves to easier creation/adaptation by experts little or no formal AI/analytics skills.

The result of the internship should be:

- Literature review.
- Creation of relevant algorithms/methodologies/tools.
- A live demonstration based on at least one example application.

Requirements:

We are looking for a PhD student with a solid background in data science and AI, and good programming skills (mainly in Python), who is enthusiastic about applied research.

Position location: Haifa

Contact details: michalsh@il.ibm.com

IBM

Intern for the Deep Learning team in Computer Vision and Augmented Reality group

Job description: We've got a position open for a graduate student who is excited to push the boundaries of the state of the art of the modern (DL based) computer vision. The right candidate will work in a world class computer vision and deep learning team with a solid publication record, and will aim towards publishing the results of the work at top-tier peer reviewed conferences such as CVPR, ICCV, ECCV, or NIPS. The internship involves solving real world challenges in the area of computer vision, machine learning and deep learning, while focusing on the few-shot learning using an array of meta learning, metric learning, transfer learning, data synthesis, augmentation learning, and other techniques that can cope with the lack of training data.

Requirements:

- MS or PhD student in either signal processing, computer vision, machine learning, or a related field
- Hands-on experience in Python or other programming languages
- Knowledge of and experience with deep learning are an advantage
- Publication/s at top-tier peer-reviewed conference or journal are an advantage

Position location: Haifa

Contact details: michalsh@il.ibm.com

IBM

Summer intern in the Speech Technologies group

Project description: The Speech Technologies group – part of the AI-Multimedia Analytics department at IBM Research – specializes in advanced speech and multimodal (audio-visual) analytics. In the area of multimodal analytics, our group is looking for a summer intern to conduct research in machine learning and deep learning from visual and auditory data, aimed at exploiting the natural correlation between the visual and auditive elements in data sources such as video. Potential applications of learning effective audio-visual models include source separation, sound localization in video, and more.

We offer:

An opportunity to work and conduct high-quality research with a leading research group in the area of multimedia analytics, on a topic that is on the cutting edge of research and technology.

Required skills:

Graduate student with strong research and self-learning skills, as well as with a significant background in computer vision and deep learning. Good programming skills in Python and prior experience with deep learning frameworks are also required.

Position location: Haifa

Contact Ddetails: michalsh@il.ibm.com

IBM

Adaptable neural speech synthesis

Job description: a position for a graduate student to explore innovative deep networks for speaking-style adaptable expressive speech generation, with limited or no supervision.

Recent end-to-end auto-regressive seq2seq speech synthesis architectures are capable of generating near-natural sounding speech. However, automatic adapting the speaking style to input text remains an open research problem. We want to tackle that problem in a challenging setup of computer-generated debates (from IBM's Project Debater), where we'd like to take an expressiveness and persuasiveness of the synthesized speech a step further using both supervised and unsupervised style embedding. We will also explore how deep text understanding can help to improve synthesized speech quality and persuasiveness.

Requirements: MSc or DSc/PhD student of CS/EE or equivalent knowledge, with focus on machine learning / deep learning, hands-on with Python and standard deep learning environments, e.g. pytorch. Additional training in signal processing and/or natural language processing is an advantage, though not mandatory.

Position location: Haifa

Contact details: michalsh@il.ibm.com

IBM

Multimodal and self-supervised deep-learning of speech

Job description: a position for a graduate student to explore new and innovative deep networks for analysis of speech signals, in the absence of labeling. For example, we want to detect the emotional state from the speech, without labeled data that could have been used for a supervised learning. We would like to explore the use of automatic speech recognition (speech to text), and then use the predicted text, along with relevant knowledge bases (for example, WordNet-Affect that maps words to emotions), and the raw speech signal as well, to learn the target information (for example, emotions). The setup will leverage ideas of self-supervision / weak-supervision, where the labels are also learned from the speech signal, in parallel to the target information.

Requirements: MSc or DSc/PhD student of CS/EE or equivalent knowledge, with focus on machine learning / deep learning, hands-on with Python and standard deep learning environments. Additional training in signal processing and/or natural language processing is an advantage, though not mandatory.

Position location: Haifa

Contact details: michalsh@il.ibm.com

IBM

Deep-learning based clustering for speaker analysis

Project description: The Speech Technologies group – part of the AI-Multimedia Analytics department at IBM Research – specializes in advanced speech and multimodal (audio-visual) analytics. In the area of speaker diarization ("who spoke when"), our group is looking for a summer intern to conduct research in deep-learning based clustering of short speech segments according to speaker identity.

We Offer:

An opportunity to work and conduct high-quality research with a leading research group in the area of multimedia analytics, on a topic that is on the cutting edge of research and technology.

Required Skills:

Graduate student with strong research and self-learning skills, as well as with a significant hands-on background in deep learning.

Position location: Haifa

Contact details: michalsh@il.ibm.com

IBM

Intern for Audiovisual Video Analytics with Deep Learning

Job description: Video-AI group at IBM Research-AI (located at Haifa and Givatayim) is looking for an outstanding research intern in the field of computer vison and machine learning, preferably with strong background in deep learning. Videos are the richest media incorporating visual content sound and speech. At this position you will have the chance to work with experienced researchers in video analysis and understanding. You will develop new deep learning schemes for cutting edge technologies in video such as Action recognition and Video captioning. Applying deep learning to videos is an emerging domain and highly challenging due to the inherently complex structures of video data containing, high computation demand, modeling of temporal information, and the multi-modal nature of video streams. As intern at HRL you'll further have a chance to publish your work at top-tier peer reviewed conferences and journals.

Requirements:

- MS or PhD student in either computer vision, machine learning, or a related field
- Experience in Python or other programming languages
- Knowledge of and experience with deep learning are an advantage
- Publication/s at top-tier peer-reviewed conference or journal are an advantage

Position location: Haifa

Contact details: michalsh@il.ibm.com

IBM

DL for Natural Language Generation

Job description: We are looking for a graduate student in the domains of machine learning and deep-learning who has a passion for solving natural language understanding problems with emphasis on generation. As an intern with us, you will be an integral part of a dynamic team, working on the most advanced problems in the domain of language understanding and generation and paired with mentors committed to guiding you to advance your research skills and qualifications. Your work with us will ideally lead to a paper submission to a top-tier conference.

So, if you are an enthusiastic student in the areas of AI, machine learning or NLP who loves to create innovative algorithms, are passionate about applying technology to real-life problems, think out-of-the-box and are interested in joining a group of top researchers solving challenging text analytics problems – your place is with us!

Requirements:

- PhD/MSc student in one of the relevant fields – AI, Machine learning, NLP
- Hands on experience in writing code in Java and/or Python
- Innovative thinking, creativity, and self-learning

Preferred: Publications in leading venues in the above areas

PhD (preferred), MSc

Contact details: michalsh@il.ibm.com

Biosense Webster

3D geometrical enhancements for reconstruction of the heart.

Job Description: The job includes enhancing geometrical models for approximating/reconstructing chambers of the heart by implementing and improving several mesh processing algorithms such as:

- Skeleton extraction for triangular meshes.

- Enhancing reconstructions from point cloud.

- Multidimensional scaling (MDS) for feature extraction.

- Laplacian mesh editing.

Requirements:

- MSc/PhD student. Advantage for PhD students.

- Knowledge in 3D mesh geometry processing.

- Research experience in 3D geometry.

- Experience in C++ programming.

Students (undergraduates/ MSc/PhD students):

- PhD student.

- MSc student (second year)

Contact Details: Fady Massarwi (Fmassar@its.jnj.com)

Dell-EMC

SPDK/DPDK

Job description: Research and integration of SW Storage accelerators SPDK and DPDK in SW only storage solution, the solution require analysis, performance measuring and assimilation and integration in the existing product.

Research the potential of using DPDK in ScaleIO:

The ScaleIO network layer code is an instrumental piece in the Datapath. The code must run with minimal overhead.

Integrating DPDK into ScaleIO network layer has a potential of reducing messaging response times & throughput.

 Analyze existing solutions (such as fstack) and determine feasibility of integration.

Requirements:

Experience in research and system analysis, Storage knowledge is an advantage, writing code in C , Deep knowledge in OS; Linux and more. SW engineering of high scale distributed systems

Contact details: Ruthie.Sharir@emc.com

Dell-EMC

New Compression engines

Job description: Study and Analysis of the new compression algorithms in the market, run some benchmarks to validate the compression parameters and assimilate the solution in the existing sw defined distributed system

Requirements: Experience in research and system analysis, Storage knowledge is an advantage, writing code in C , Deep knowledge in OS; Linux and more. SW engineering of high scale distributed systems

Contact details: Ruthie.Sharir@emc.com

Dell-EMC

Erasure Code algorithm analysis

Job description: run and evaluate several Erasure code algorithm like parity,clay,read salmona. Compare and assimilate the solution that meet the requirements.

Requirements: Experience in research and system analysis, Storage knowledge is an advantage, writing code in C , Deep knowledge in OS; Linux and more. SW engineering of high scale distributed systems

Contact details: Ruthie.Sharir@emc.com

Dell-EMC

SPDK/DPDK

Job description:

Research possibilities and design an inhouse allocator:

Currently the ScaleIO code relies on standard library allocators (e.g. malloc/free). These allocators

are unpredictable and not necessarily provide the best response time as required by ScaleIO.

The suggested inhouse allocator must be tailored for allocation patterns typical to ScaleIO,

memory pinning/protection/alignment capabilities, and adhere to strict response time requirements.

Requirements: Experience in research and system analysis, Storage knowledge is an advantage, writing code in C , Deep knowledge in OS; Linux and more. SW engineering of high scale distributed systems

Contact details: Ruthie.Sharir@emc.com

Dell-EMC

UMT scheduling

Job description:

Research possibilities for UMT scheduling improvements:

ScaleIO is a "hyper threaded" product, and thread scheduling policy has a significant effect on performance and stability.

The goal of the suggested research task is to seek alternatives for the least-queue-depth scheduling algorithm that is currently

 in use.

Requirements: Experience in research and system analysis, Storage knowledge is an advantage, writing code in C , Deep knowledge in OS; Linux and more. SW engineering of high scale distributed systems

Contact details: Ruthie.Sharir@emc.com

Dell-EMC

Network

Job description:

Research a solution for identify and respond to "slow sick sockets" in the scaleio network layer:

Logical connections between scaleio components are realized via several sockets usually involving different network routes.

Sometimes a malfunctioning route or misconfiguration will cause a significant decrease in the throughput of some of the sockets

in a logical connection. A solution needs to be designed to identify and disqualify these "sick" sockets and to re-qualify them

when the disturbance ends.

Requirements: Experience in research and system analysis, Storage knowledge is an advantage, writing code in C , Deep knowledge in OS; Linux and more. SW engineering of high scale distributed systems

Contact details: Ruthie.Sharir@emc.com

Dell-EMC

Security

Job description:

Research the security weaknesses in SIO:

The ScaleIO product is running with superuser privileges, therefore it must be resilient to security attacks.

The suggested research is to study the entry points to the system (/dev/scini, sdbg socket, ScaleIO NET sockets)

 and attempt to locate weaknesses.

Evaluate the benefits of CMake/MakeMe over GNU make in our project and migrate.

Requirements: Experience in research and system analysis, Storage knowledge is an advantage, writing code in C , Deep knowledge in OS; Linux and more. SW engineering of high scale distributed systems

Contact details: Ruthie.Sharir@emc.com

Dell-EMC

Development subjects

Refactor SDBG

- UX: Heirachical representation of objects, friendlier backdoor commands.

- More flexible protocol.

Rewrite AIX SDC packages in smitty instead of RPM:

Currently AIX SDC driver is packed into an RPM package. The task is to reimplement the package

for the smitty package manager, maintaining necessary behavior and taking into account the

non trivial upgrade process.

Improve UMT MIT monitoring:

Research current metrics, suggest & implement additional metrics.

Full RPC support in SDC:

Currently the SDC driver is not capable of receiving requests via the ScaleIO network messaging protocol.

This capability is required for a future version.

Requirements: Experience in research and system analysis, Storage knowledge is an advantage, writing code in C , Deep knowledge in OS; Linux and more. SW engineering of high scale distributed systems

Contact details: Ruthie.Sharir@emc.com