KALEAB A. KINFU

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EDUCATION

Université de Bordeaux, France *Jul 2020*
M.S. in Computer Science, *Honours*
Third semester of Erasmus Mundus Joint Master Degree (EMJMD) in
Image Processing and Computer Vision (IPCV) program

Universidad Autónoma de Madrid, Spain *Jul 2020*
M.S. in Image Processing and Computer Vision,, *Honours*
Second semester of Image Processing and Computer Vision (IPCV) program.

Pazmany Peter Catholic University, Hungary *Jul 2020*
M.S. in Computer Science & Engineering, *Honours*
First semester of Image Processing and Computer Vision (IPCV) program.
GPA: 4.87/5

Addis Ababa University, Ethiopia *Jul 2017*
B.S. in Computer Science, *Very Great Distinction*
GPA: 3.93 Major GPA: 3.99

RESEARCH SCHOOL

The Cornell, Maryland, Max Planck Pre-doctoral Research School, Germany *Aug 2020*
Emerging Research Trends in Computer Science
The Cornell, Maryland, Max Planck Pre-doctoral Research School, Germany *Aug 2019*
Emerging Research Trends in Computer Science

EXPERIENCE

Institute of Computer Graphics and Vision, TU Graz Feb 2020 - Jul 2020
Research Associate *Graz, Austria*

· During my stay at TU Graz under the supervision of Prof. Horst Bischof, I have worked on my master thesis entitled 'Continual Lifelong Learning for Autonomous Vehicles'. We investigated CNN based methods for the task of continual lifelong learning for autonomous vehicles learning problems, particularly monocular depth estimation.

We proposed a self-supervised domain adaptation technique, which does not require ground-truth depth annotations, and a confidence-guided depth supervised domain adaptation technique, which relies only on image pairs and utilizing state-of-the-art deep-stereo algorithms to generate pseudo-ground-truth labeling.

We proposed a mixture of standard- and pseudo- rehearsal approaches that rely on the basis of rehearsing past knowledge with a replay mechanism to prevent catastrophic forgetting. It stores relevant representative instances to re-train jointly with the new coming data.

Through offline and online learning experiments on two benchmarks and standard evaluation protocols, we demonstrate our proposed methods are effective in adapting to new settings and ever-changing environments while not only preventing catastrophic forgetting but also enhancing the performance sequentially.

Video Processing and Understanding Lab Jun 2019 - Aug 2019
Research Intern *Madrid, Spain*

· Developed a tool for the automatic generation of ground-truth data for object detection of Google Street View images.
· Developed a multi-projection variant of YOLO detector for Equirectangular Panorama, specifically Google Street View images.

Addis Ababa University Sep 2017 - Sep 2018
Assistant Lecturer *Addis Ababa, Ethiopia*

· Developed own teaching materials, methods and approaches taking into account established or agreed on practices where necessary.
· Taught in a variety of settings from small group tutorials to large lectures.
· Supervised the work of students, provided advice on study skills and helped them with learning problems.
· Set and marked assignments and set examination questions as well as assessing the work and progress of students by reference to defined criteria and provided constructive feedback to students.
· Supervised student projects under guidance and supervision.

Addis Ababa Water and Sewerage Authority Sep 2017 - Jan 2018
Biometric Systems Developer *Addis Ababa, Ethiopia*

· Designed and developed biometric systems
· Diagnosed and resolved hardware, software, and network problems
· Performed biometric system management functions including system setup, installation, monitoring, or adding applications, users, and devices in 11 branches across the city.

HONORS AND AWARDS

Erasmus+, Erasmus Mundus Joint Master Scholarship (EUR 49,000)	*2018 - 2020*
Best Bachelor Thesis Award, Addis Ababa University	*2017*
Very Great Distinction, Dux of College of Natural Sciences, Addis Ababa University	*2017*
Finalist, Ethiopian National ICT Innovation Competition	*2015*
Finalist, Ethiopian National ICT Innovation Competition	*2013*
KAIST, Korean Government Scholarship (Awarded and declined)	*2018*
Seoul National University, Korean Government Scholarship (Awarded and declined)	*2018*
Italian Government Scholarship (Awarded and declined)	*2018*
Invest your Talent Scholarship (Awarded and declined)	*2018*

TECHNICAL STRENGTHS

Languages	Python, C/C++, Matlab, C,
Libraries	Pytorch, Tensorflow, Keras, Scipy, OpenCV, OpenGL, PCL
Tools	Unity3D, Blender, Xilinx, LaTeX, git

PROJECTS

Ground-truth generation for Google Street View images *Jun 2019 - Sept 2019*
I have developed a tool for the automatic generation of ground-truth data for object detection of Google Street View images

Object Detection in Equirectangular Panorama *Jun 2019 - Sep 2019*
I have proposed and developed a multi-projection variant of YOLO detector for Equirectangular Panorama, specifically Google Street View images.

3D Reconstruction from single RGB image based on Deep Learning *Feb 2019 – Feb 2020*
Currently, working on a deep learning technique aiming to infer 3D object reconstruction from single RGB image.

Deep Learning based Pedestrian Detection *Mar 2019 – Apr 2019*
A real-time fine-tuned pedestrian detection system based on different deep-learning object detection techniques including YOLO, SSD and MaskRCNN.

Image Smoothing for FPGA with high level synthesis *Nov 2018 – Jan 2019*
Implemented an image smoothing technique, namely median filter, to reduce the effect of pixel noise in images based on FPGA so that to provides high-speed performance of the algorithm.

Ethiopian Sign Language to Amharic Text Translator *Jan 2018 – Jun 2018*
Ethiopian sign language to Amharic text translation system converts a gesture into its corresponding Ethiopian Sign Language and displays an equivalent Amharic text. It has also a sign trainer which allows users to create custom gestures and store data into the knowledge base.

Automated Optical Mark Reader *Sep 2017 – Jan 2018*
An automated optical mark reader built for Ethiopian National Educational Assessment and Examinations Agency's national examinations, i.e. General Leaving Certificate Examination and Higher Education Entrance Examination, which allows creation of OMR form templates which will be used to detect marks, bulk reads student information and answers from registration form and answer sheets respectively, and stores the result in a database.

Intelligent Traffic Management System *Mar 2015 – Jul 2017*
An autonomous and an intelligent traffic management system that can dynamically allot traffic signal time based on density, track vehicles, recognize license plates and estimate their speed, manage smart parking, and provide real-time incident notifications.

- Awarded as the innovative project of the year by Addis Ababa University and YeBen Endowment Fund

Office Collaboration Suite *Sep 2016 – Mar 2016*
A desktop application that help colleagues of an office communicate easily. Some of its features are virtual notice board, chat, video chat, video conferencing, to-do list management, and file sharing.

eBrana – online bookstore *Sep 2014 – Feb 2015*
A web application that provides an opportunity for writers to self publish books on an online store. Books are digitized to a highly secure e-book format with 'copy and content protection', readers having privileges to the degree that the authors permit. When consumers buy a book from this store, they get a protected e-book file and a single security code. The copy protection includes preventing users from printing, copying and pasting, taking screen print, and the e-book shall only work on a single device with a single security code.

Alatyon *Jul 2014 – Oct 2014*
A web application that allows buyers to use SMS, mobile application or web application to verify if a product is genuine or fake and get more information about the product like its real expire date and more. Here is the scenario: manufacturers pack their genuine products with a label of serial number, scratch-off unique id, QR unique code, or barcodes, which will be stored on our database. Then customers with feature phones can use the serial number or the scratch-off label to verify or send the unique id to a toll-free SMS number then they will receive back the verification of the product and its details; customers with smart phone can also use our mobile application that can scan QR code and barcodes to automatically get information, about the product, grabbed from internet; customers who don't own a mobile phone could also use our web application to verify the product. Beyond this, scanning the product's barcode, customers can compare prices from retailers selling that product around them.

- Secured as finalist on the 4^{th} ICT Center of Excellence national competition.

Abugida *Jul 2013 - Jan 2014*

An Android app that delivers electronic educational materials in a fun way so that kids can learn and play at the same time. It guarantees parents their kids will not exit out of the application and go to other device settings and files. It is a multi-language app that consist materials in English, Amharic and Geez.

- Recognized as one of the top 30 mobile-delivered applications by ICT Center of Excellence 3^{rd} national competition.

Delalaw *Jul 2013 - Jan 2014*

An e-commerce web app that helps

- Buyers and consumers communicate easily;
- Organizations post vacancy and tenders; and
- Freelancers bid on projects and work from home.