HOFSTRA UNIVERSITY
Department of Computer Science

PROPOSAL APPLICATION FORM
for
MASTER'S PROJECTS AND THESES

Check one: **Project (CSC 300/303)** _✓_____ **Thesis (CSC 301-302)** _____

Semester: _Fall 2020_____

STUDENT NAME: _Zixuan Zeng_____ **Student ID #:** _h7031____ - _09___ - ___533____ **Address:** 141 Rhodes Ave. Hempstead NY 11550_____ **Phone:** (206) __849____- __3917_____

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FACULTY ADVISOR: __Steven Lindo_____

PROPOSAL INFORMATION

TITLE:_____Mobile Software for photo-editing and photo analysis
_____

DESCRIPTION (Brief): _A mobile software that allows users to edit their photos from album. Meanwhile, it studies users editing preference and analyzes users' favorite imaging style to generate users post-edit images automatically using machine learning algorithms when new images are uploaded._____
_____

PROPOSAL: ***Attach*** ***a two-page description and a bibliography to this form.***

SPECIAL MATERIALS NEEDED: _____

APPROVALS:

Student: Zixuan Zeng	**Date:**4/2/2020
Faculty Advisor:_____	**Date:**_____
Committee Member (300/303 or 301): _____	**Date:**_____
Committee Member (301): _____	**Date:**_____
Department Chair: _____	**Date:** _____

Proposal

I implement a mobile software to accomplish photo-editing, therefore, I would choose Swift programming language dedicated for IOS. When emulating the traditional photo editing software, my software should consist of most of the following (If time permits, implement them all):

1. Basics: Exposure Adjustment (shadow, high light, white, dark, exposure step, etc.)

2. Colors: Temperature, Tone, Color Curve, Saturation, HSL, etc.

3. Details: Noise evaluation (Removal & Addition), Vignetting, Grain, Sharpen, etc.

4. Tailor: Object matting and Object recompositing.

Besides those, my software could also analyze the user's favorite imaging style based on pass editing history made by users and offer an option for the user that can automatically edit new images for that user in his/her style. With that being said, the machine does not have a fixed editing style/ imaging style. All the information is learned from the user's input. More specifically, the classification falls into these areas:

1. Noise/Grain level estimation, Temperature, Tone, Exposure Average, and Dynamic Range of the final images

2. Comparison of the historical input images and output images

3. Decide if the user prefers image matting

4. Record all the adjustments (button clicked/slide) user has made on previous images

Based on the above information, use appropriate machine learning algorithms to learn from the feeding data.

Bibliography

[1] R. Szeliski, Computer Vision: Algorithms and Applications, Springer, 2010.

[2] Mary Elaine Califf and R. J. Mooney, "Relational Learning of Pattern-Match Rules for Information Extraction," 1999.

[3] A. Kendall and Y. Gal, "What Uncertainties Do We Need in Bayesian Deep," *31st Conference on Neural Information Processing Systems,* 2017.

[4] A. Voulodimos, N. Doulamis, A. Doulamis and E. Protopapadakis, "Deep Learning for Computer Vision: A Brief Review," *Hindawi,* 2018.

[5] K. Gopalakrishnan, S. K. Khaitan, A. Choudhary and A. Agrawal, "Deep Convolutional Neural Networks with transfer learning for," *ELSEVIER,* 18 September 2017.