Christopher H. Gearhart

1381 Huntington Dr. Mundelein, IL 60060 | chris@bblanimation.com | 224.778.0321

Pixar Animation Studios
Attn: Recruiting / Pixar Undergraduate Program
1200 Park Avenue
Emeryville, CA 94608

To Pixar Undergraduate Program Recruiting –

My dream is to work as a Technical Director at Pixar. I've developed strong passions for coding, art and 3D over the past ten years, and this job would be a marriage of all three. I'm pursuing an interdisciplinary degree combining computer science, art, and media communication to further my technical and artistic grasp on computer graphics.

This year, I applied what I've learned to solve the real world problem of long render times with Python code that distributes and manages path-tracing jobs on a custom render farm. I worked with the system administrators and graphics professor at Taylor University to distribute render jobs from a Blender animation project to over 80 servers, reducing render times from over 10 days to less than 2 hours.

I have also devoted thousands of hours to animated storytelling through my self-promoted work. My attention to detail for VFX and compositing recently caught the attention of director Gareth Edwards, and he sent an email praising my work. The LEGO Group also took notice, and hired me to produce graphic content for a documentary called 'The Rise of MINILAND' out in March. I feel this experience, paired with my experience in problem solving and technical artistry, has prepared me for this learning opportunity at the Pixar Undergraduate Program. Without a doubt, pursuing my passion as a TD at Pixar would be a dream come true.

I am grateful for your time in considering my application.

Sincerely Yours,

Christopher Gearhart

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Education **Anticipated Graduation May 2019**

B.S. Computer Science Digital Media + Systems
Taylor University, Upland, Indiana
Cumulative GPA: 3.9
Relevant Courses: Surfaces and Modeling (COS 424), Modeling and Simulation (SYS 402), Visual Communications (ART 152), Data Structures and Algorithms (COS 265)

Skills

- Professional: Blender 3D, Python, Adobe CC, HTML, CSS, Javascript, stop motion, compositing
- Intermediate: C++, Java, Maya, 3DS Max, Nuke

Related Experience

Render Distribution System **2016-Present**

- Built custom render farm that distributes and manages path traced render jobs with Blender interface
- Worked with system administrators to distribute to over 80 servers
  https://repo.cse.taylor.edu/cgearhar/RenderFarm

Owner/Animator **2009-Present**
Bricks Brought to Life, Greater Chicagoland Area

- Directed over 15 short films; 1.4 million views in 2017 (demo reel: http://bblanimation.com/demo-reel)
- Directed Rogue One trailer recreation in LEGO
  "It's so surreal to see something you are incredibly familiar with replicated with such painstaking attention to detail…" - Gareth Edwards

Director of Photography **Fall 2013**
The LEGO Group, Billund, Denmark

- Filmed two minute documentary for LEGO promotional use
- Awarded $2.5K for pitch video and pamphlet

Teaching Assistant for COS-120 (Intro to Computational Problem Solving) **2015-Present**
Taylor University, Upland, Indiana

- Tutored over 120 students, mentored 22 one-on-one
- Graded Python coursework within 24 hours of submission

Awards

- LEGO Tongal "So Many Ways to Play" story idea winner – Creative (2012)
- Digitalmation Awards winner, "Best Stop Motion Animation" – Director (2015)
- Tongal "What Does LEGO Mean to You" competition winner – Director (2013)
- Phi Theta Kappa Honors Society – Student (2015-Present)
- Community Life Scholar (Awarded for contribution to residence life) – Student (2015-Present)

Professional Experience

Manager, HR Assistant, & Certified Trainer **2014-2015**
Chick-fil-A, Vernon Hills, Illinois

- Increased drive-thru efficiency by 22%
- Entrusted with tens of thousands of dollars in cash flow management and inFORM reporting

TAYLOR UNIVERSITY®

Dear Pixar Search Committee,

I am pleased to recommend Christopher Gearhart for the Pixar Undergraduate Program. Christopher has been a student in many of my courses, so I have had the pleasure of getting to know him over the past two years. I know that Christopher is an excellent candidate for the program, as he has been an outstanding member of our student body.

Christopher absorbs computer science concepts quickly, and yet he is not afraid to probe for further explanation on difficult material. His inquisitive disposition often has him asking good questions in- and outside of the classroom to deepen his understanding and to find new ways of applying what he has learned. Students look up to Christopher, seeing him as a peer as well as a great role model that they try to emulate. For these reasons Christopher excels at tutoring and assisting with our introductory course. I thoroughly enjoy having Christopher as a student.

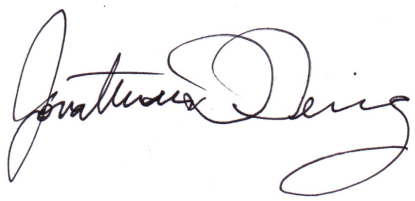
Christopher's artistic talent shines clearly through his stop motion work. His versatility with digital tools, patience for the craft, and meticulous attention to detail has attracted the global attention of top brick animators, the director of *Star Wars: Rogue One*, and the LEGO company. After watching his demo reel for this application, I was amazed at how much outstanding work he has done (modeling, camera tracking, lighting, texturing, simulation, etc.). As a graphics professor and researcher, I look forward to building on top of his already solid foundation in future graphics courses and projects.

Along with his undeniable talent and attention to detail, Christopher has been an absolute joy to work with. He is a true team player, always managing to foster positive discussions and bring the best out of the others. With some assistance from myself and the system administrators, Christopher developed from scratch a custom render farm to distribute path-tracing jobs across 80 computer systems.

I confidently recommend Christopher to the Pixar Undergraduate Program. He is already a dedicated and competent artist and CS student, and I have no doubt that Christopher will easily tackle even more technical and challenging styles and projects as he further develops his computer science skills. Christopher is an excellent candidate for this internship, and I believe that he will be as much a positive asset for Pixar as he has been for our department.

Please feel free to contact me at 768.998.4931 or jon.denning@taylor.edu should you like to discuss Christopher's qualifications and experience further. I would be happy to expand on my recommendation.

Sincerely,



Dr. Jonathan Denning
Assistant Professor
Computer Science and Engineering
Taylor University, Indiana

Taylor University Academic Transcript

@00652443 Christopher H. Gearhart
Feb 04, 2017 04:28 pm

This is not an official transcript. Courses which are in progress may also be included on this transcript.

Transfer Credit Institution Credit Transcript Totals Courses in Progress

Transcript Data

STUDENT INFORMATION

Name : Christopher H. Gearhart
Birth Date: 01-JAN

Curriculum Information

Primary Program
Bachelor of Science
Program: Natural Science BS, Upland
College: Sch of Natural & Applied Sci
Major and Department: Comp. Sci.-Digital Media/Sys, Computer Science & Engineering

***Transcript type:Web Transcript is NOT Official ***

DEGREE

Sought: Bachelor of Science **Degree Date:**

Curriculum Information

Primary Program
Program: Natural Science BS, Upland
College: Sch of Natural & Applied Sci
Major: Comp. Sci.-Digital Media/Sys

TRANSFER CREDIT ACCEPTED BY INSTITUTION -Top-

FA13-SP14: College of Lake County

Subject	Course	Title	Grade	Credit Hours	Quality Points	R
CAS	110	Fundamentals of Speech	TR	3.000		0.00
CHE	100	Chem for a Changing World-LAB	TR	4.000		0.00
ENG	110	English Composition II	TR	3.000		0.00
ENG	199	English Composition I	TR	3.000		0.00
HIS	104	History of Wes Civ to 1500	TR	3.000		0.00
MAT	210	Elementary Statistics	TR	4.000		0.00
SOC	100	Introduction to Sociology	TR	3.000		0.00

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	0.000	0.000	23.000	0.000	0.00	0.00

Unofficial Transcript

INSTITUTION CREDIT -Top-

Term: Fall 2015
College: Sch of Natural & Applied Sci
Major: Comp. Sci.-Digital Media/Sys

Academic Standing: Good Standing
Additional Standing: Dean's List

Subject	Course	Campus	Level	Title	Grade	Credit Hours	Quality Points	R
ART	151	Upland Campus	UG	Two-Dimensional Design	A	3.000	12.00	
BIB	110	Upland Campus	UG	Biblical Literature I	A-	3.000	11.01	
COS	120	Upland Campus	UG	Intro Computational Prob Solv	A	4.000	16.00	
IAS	101	Upland Campus	UG	First-Year Experience	A	1.000	4.00	
IAS	110	Upland Campus	UG	Found Christian Liberal Arts	A	3.000	12.00	
SYS	214	Upland Campus	UG	Princ Human Comp Interaction	A	3.000	12.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	17.000	17.000	17.000	17.000	67.01	3.94
Cumulative:	17.000	17.000	17.000	17.000	67.01	3.94

Unofficial Transcript

Term: Interterm 2016

College: Sch of Natural & Applied Sci
Major: Comp. Sci.-Digital Media/Sys
Academic Standing:

Subject	Course	Campus	Level	Title	Grade	Credit Hours	Quality Points	R
COS	143	Upland Campus	UG	Interactive Web Page Design	A	3.000	12.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	3.000	3.000	3.000	3.000	12.00	4.00
Cumulative:	20.000	20.000	20.000	20.000	79.01	3.95

Unofficial Transcript

Term: Spring 2016

College: Sch of Natural & Applied Sci
Major: Comp. Sci.-Digital Media/Sys
Academic Standing: Good Standing
Additional Standing: Dean's List

Subject	Course	Campus	Level	Title	Grade	Credit Hours	Quality Points	R
ART	152	Upland Campus	UG	Visual Communications	A-	3.000	11.01	
COS	121	Upland Campus	UG	Foundations Computer Science	A	4.000	16.00	
KIN	100	Upland Campus	UG	Fitness for Life	A	2.000	8.00	
MAT	151	Upland Campus	UG	Calculus I	A	4.000	16.00	
SYS	101	Upland Campus	UG	Introduction to Systems	A-	3.000	11.01	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	16.000	16.000	16.000	16.000	62.02	3.87
Cumulative:	36.000	36.000	36.000	36.000	141.03	3.91

Unofficial Transcript

Term: Fall 2016

College: Sch of Natural & Applied Sci
Major: Comp. Sci.-Digital Media/Sys
Academic Standing: Good Standing
Additional Standing: Dean's List

Subject	Course	Campus	Level	Title	Grade	Credit Hours	Quality Points	R
ART	154	Upland Campus	UG	Digital Tools: Illustrator	A	1.000	4.00	
ART	156	Upland Campus	UG	Digital Tools: Photoshop	A	1.000	4.00	
BIB	210	Upland Campus	UG	Biblical Literature II	A	3.000	12.00	
COS	243	Upland Campus	UG	Multi-tier Web Application Dev	A	3.000	12.00	
COS	265	Upland Campus	UG	Data Structures and Algorithms	A	4.000	16.00	
ENG	230	Upland Campus	UG	World Literature	A-	3.000	11.01	
IAS	350	Upland Campus	UG	Peer Ldrshp First Year Seminar	A	1.000	4.00	
IAS	352	Upland Campus	UG	Sem:Discipleship Assistant	A	1.000	4.00	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	17.000	17.000	17.000	17.000	67.01	3.94
Cumulative:	53.000	53.000	53.000	53.000	208.04	3.92

Unofficial Transcript

Term: Interterm 2017

College: Sch of Natural & Applied Sci
Major: Comp. Sci.-Digital Media/Sys
Academic Standing:

Subject	Course	Campus	Level	Title	Grade	Credit Hours	Quality Points	R
HUM	120	Upland Campus	UG	Survey of 20th Cent Mus & Art	A-	4.000	14.68	

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Current Term:	4.000	4.000	4.000	4.000	14.68	3.67
Cumulative:	57.000	57.000	57.000	57.000	222.72	3.90

Unofficial Transcript

TRANSCRIPT TOTALS (UNDERGRADUATE) -Top-

	Attempt Hours	Passed Hours	Earned Hours	GPA Hours	Quality Points	GPA
Total Institution:	57.000	57.000	57.000	57.000	222.72	3.90
Total Transfer:	0.000	0.000	23.000	0.000	0.00	0.00
Overall:	57.000	57.000	80.000	57.000	222.72	3.90

Unofficial Transcript

COURSES IN PROGRESS -Top-

Term: Spring 2017

College: Sch of Natural & Applied Sci
Major: Comp. Sci.-Digital Media/Sys

Subject	Course	Campus	Level	Title	Credit Hours
COS	424	Upland Campus	UG	Surfaces & Modeling	3.000
		Upland			

FMP	215	Campus	UG	Audio Production	3.000
REL	313	Upland Campus	UG	Historic Christian Belief	3.000
SUS	200	Upland Campus	UG	Environment and Society	3.000
SYS	392	Upland Campus	UG	Systems Seminar	1.000
SYS	402	Upland Campus	UG	Modeling and Simulation	3.000

Unofficial Transcript

RELEASE: 8.7.1

```
""" Code excerpt from custom render distribution system """

def jobIsValid(jobType, projectName):
    """ Verifies that the job is valid before sending it to the host server """

    # verify that project has been saved
    if projectName == "":
        return {"valid":False, "errorType":"WARNING", "errorMessage":"RENDER FAILED: You have not saved your
        project file. Please save it before attempting to render."}

    # verify that a camera exists in the scene
    elif bpy.context.scene.camera is None:
        return {"valid":False, "errorType":"ERROR", "errorMessage":"RENDER FAILED: No camera in scene."}

    # verify that sampling is high enough to provide expected results
    elif jobType == "image":
        # assuming path tracing samples
        samples = bpy.context.scene.cycles.samples
        if bpy.context.scene.cycles.use_square_samples:
            samples = samples**2
        if samples < 10:
            return {"valid":True, "errorType":"WARNING", "errorMessage":"RENDER ALERT: Render result may be
            inaccurate at {samples} samples. Try 10 or more samples for a more accurate
            render.".format(samples=str(samples))}

    # else, the job is valid
    return {"valid":True, "errorType":None, "errorMessage":None}


def averageFrames(projectPath, projectName):
    """ Averages each pixel from all rendered images to present final result """

    # Get valid image files from 'render-dump' folder
    allFiles = os.listdir(os.path.join(projectPath, "render-dump"))
    imList = [filename for filename in allFiles if (filename[-3:] in ["tga", "TGA"] and "_seed-" in filename)]
    imList = [os.path.join(projectPath, "render-dump", im) for im in imList]
    if not imList:
        sys.stderr.write("No valid image files to average.")
        sys.exit(1)

    # Assuming all images are the same size, get dimensions of first image
    imRef = Image.open(imlist[0])
    w, h = imRef.size
    mode = imRef.mode
    N = len(imList)

    # Create a numpy array of floats to store the average
    if mode == "RGB":
        arr = numpy.zeros((h, w, 3), numpy.float)
    elif mode == "RGBA":
        arr = numpy.zeros((h, w, 4), numpy.float)
    elif mode == "L":
        arr = numpy.zeros((h, w), numpy.float)
    else:
        sys.stderr.write("Unsupported image type. Supported types: ['RGB', 'RGBA', 'BW']")
        sys.exit(1)

    # Build up average pixel intensities, casting each image as an array of floats
    for im in imList:
        imarr = numpy.array(Image.open(im), dtype=numpy.float)
        arr = arr+imarr/N

    # Round values in array and cast as 8-bit integer
    arr = numpy.array(numpy.round(arr), dtype=numpy.uint8)
```

Demo Reel Breakdown

Shot 1
Project: Commissioned 3D Logo
Animated, finely-tuned materials, rendered using custom distribution system

Shot 2-3
Project: Commissioned Stop Motion Tutorial
Animated (demonstrates personality)

Shot 4
Project: Commissioned Stop Motion Tutorial
Animated (demonstrates gravity, momentum, squash & stretch)

Shot 5
Project: Personal Short Film Project
Cloth simulation, 3d backdrop, compositing, color grading

Shot 6-9
Project: Commissioned Title Recreation in Lego
Animated, composited, rendered with unbiased path tracing engine

Shot 10
Project: Group Animation Project (role: Director, VFX Artist, Compositor)
Particle systems, camera tracking

Shot 11
Project: Group Animation Project (role: Director, VFX Artist, Compositor)
Set extension, lighting adjustments

Shot 12
Project: Personal Short Film Project
Lit, animated, rendered with biased rasterization engine

Shot 13
Project: Group Animation Project (role: Director, VFX Artist, Compositor)
Linear keying, compositing, camera tracking

Shot 14-20
Project: Group Animation Project (role: VFX Artist, Compositor)
Compositing, set extension, fluid simulation

Shot 21
Project: Personal Short Film Project
Camera tracking, 3d backdrop, compositing, color grading

Shot 22-23
Project: Commissioned Title Recreation in Lego
3d model generation, lighting, compositing, color grading

Shot 24
Project: Commissioned Stop Motion Tutorial
Animated (demonstrates unanticipated vs. anticipated actions)