Declaration of Dr. Michael Zyda in Support of Petition for *Inter Partes* Review of U.S. Patent No. 10,403,051 B2

UNITED STATES PATENT AND TRADEMARK OFFICE

—————
BEFORE THE PATENT TRIAL AND APPEAL BOARD

——————

NIANTIC, INC., Petitioner

v.

NANT HOLDINGS IP, LLC, Patent Owner

U.S. Patent No. 10,403,051 B2 Issue Date: September 3, 2019

Title: Interference Based Augmented Reality Hosting Platforms

#### **DECLARATION OF DR. MICHAEL ZYDA**



## TABLE OF CONTENTS

				Page
I.	INTRODUCTION AND QUALIFICATIONS			
	A.	Qua	lifications and Experience	1
	В.	Mate	erials Considered	5
II.	PER	RSON OF ORDINARY SKILL IN THE ART		
III.	LEGAL PRINCIPLES USED IN THE ANALYSIS			12
	A.	A. Prior Art		
	В.	Clair	m Construction	12
	C.	Lega	al Standards for Obviousness	14
	D.	Reas	sonable Expectation of Success	20
IV.	RELEVANT TECHNOLOGY BACKGROUND			20
	A.	Intro	oduction to Augmented Reality	20
	B.	Histo	ory of Augmented Reality	23
	C.	Loca	ation-Based Tracking in AR Systems	28
	D.	Obje	ect Recognition in AR Systems	34
	E.	Aug	mented Reality Gaming	36
	F.	Con	ducting Commercial Transactions in AR Systems	41
V.	THE '051 PATENT			43
	A.	Overview of the Specification		43
	B.	Overview of the Challenged Claims		52
	C.	Disputed Claim Term Constructions		53
VI.	APPLICATION OF THE PRIOR ART TO THE CHALLENGED CLAIMS			54
	A.	Brie	f Description and Summary of the Prior Art	55
		1.	Yu [Ex. 1003]	55
		2.	Sanz-Pastor [Ex. 1004]	
		3.	Mullen [Ex. 1005]	63
	B.	Groi	and 1: Obviousness of the Challenged Claims Over Yu	



#### **TABLE OF CONTENTS**

(continued)

Page

1.	Inde	Independent claim 1				
	a.	"An augmented reality (AR) platform system comprising" (Claim 1 preamble)67				
	b.	"an AR object repository storing available AR objects in a first non-transitory computer readable memory; and" (Claim 1[a])				
	c.	"an AR server coupled with the AR object repository and, upon execution of software instructions stored in a second non-transitory computer readable memory by a processor, is configured to:" (Claim 1[b])				
	d.	"obtain digital data representative of an environment of an AR capable mobile device, the digital data including a device location of the AR capable device and a virtual element attribute;"  (Claim 1[c])				
	e.	"determine at least one context related to the AR capable device and pertinent to the environment based at least on the device location;" (Claim 1[d])96				
	f.	"identify relevant AR objects from the AR object repository representing available AR objects corresponding to the at least one context;" (Claim 1[e])				
	g.	"determine whether to alter presence of a relevant AR object based on at least the device location and the virtual element attribute; and" (Claim 1[f])107				
	h.	"cause the AR capable device to render the relevant AR object according to its altered presence." (Claim 1[g])				
2.	is a r	n 5: "The system of claim 1, wherein the AR server remote server coupled with the AR capable device wireless network"				



#### **TABLE OF CONTENTS**

(continued)

Page

3.	Claim 6: "The system of claim 1, wherein the relevant AR object is caused to be rendered based on a position of the AR capable device relative to the environment."	128
4.	Claim 7: "The system of claim 1, wherein the relevant AR object is caused to be rendered based on an orientation of the AR capable device relative to the environment."	130
5.	Claim 8: "The system of claim 1, wherein the relevant AR object is caused to be rendered within an AR game."	132
6.	Claim 9: "The system of claim 1, wherein the relevant AR object is caused to be rendered by superimposing a visual image of at least one relevant AR object over an image of the environment."	134
7.	Claim 18: "The system of claim 1, wherein the presence of the relevant AR object is altered to include a non-visible presence."	136
8.	Claim 22: "The system of claim 1, wherein the determination of whether to alter presence of the relevant AR object depends on a time."	137
9.	Claim 23: "The system of claim 22, wherein the presence alteration of the relevant AR object changes with the time."	139
10.	Claim 27: "The system of claim 1, wherein the AR server is further configured to enable the AR capable device to populate the environment with at least one of the relevant AR objects."	141
11.	Claim 28: "The system of claim 1, wherein the environment comprises an AR environment."	143
12.	Claim 29: "The system of claim 28, wherein the AR environment includes real-world elements and virtual elements"	146



13.	Claim 34: "The system of claim 1, wherein the AR server is further configured to enable the AR capable device to have an interaction with the rendered relevant AR object."		
14.	Claim 36: "The system of claim 1, wherein the mobile device is a cell phone."		
15.	Claim 38: "The system of claim 1, wherein the mobile device is a tablet computer."		
16.	Independent claim 43		
	a.	"An Augmented Reality (AR) server coupled with an AR object repository and configured to:" (Claim 43 preamble)	152
	b.	"obtain digital data representative of an environment of an AR capable mobile device, the digital data including a device location of the AR capable device and a virtual element attribute;" (Claim 43[a])	153
	c.	"determine at least one context related to the AR capable device and pertinent to the environment based at least on the device location;" (Claim 43[b])	153
	d.	"identify relevant AR objects from the AR object repository representing available AR objects corresponding to the at least one context;" (Claim 43[c])	154
	e.	"determine whether to make present relevant AR objects based on at least the device location and the virtual element attribute; and" (Claim 43[d])	154
	f.	"cause the AR capable device to render one or more of the relevant AR objects if they have been determined to be made present." (Claim 43[e])	157
		Obviousness of the Challenged Claims Over Yu in nz-Pastor	159



C.

# DOCKET

# Explore Litigation Insights



Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## **Real-Time Litigation Alerts**



Keep your litigation team up-to-date with **real-time** alerts and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## **Advanced Docket Research**



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

### **Analytics At Your Fingertips**



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

#### API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

#### **LAW FIRMS**

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

#### **FINANCIAL INSTITUTIONS**

Litigation and bankruptcy checks for companies and debtors.

#### **E-DISCOVERY AND LEGAL VENDORS**

Sync your system to PACER to automate legal marketing.

