# Supplemental material for 'Global Contrast based Salient Region Detection'

Ming-Ming Cheng<sup>1</sup> Guo-Xin Zhang<sup>1</sup> Niloy J. Mitra<sup>2</sup> Xiaolei Huang<sup>3</sup> Shi-Min Hu<sup>1</sup> <sup>1</sup> TNList, Tsinghua University <sup>2</sup> KAUST / IIT Delhi <sup>3</sup> Lehigh University

[cmm.thu]@qq.com

# 1. Database

We used the ground truth database shared by Achanta et al. [2]. This database contains 1000 images as well as manually segmented salient objects. In Section 4, we show this database, as well as saliency detection results using our methods and 8 other state-of-the-art algorithms on this database.

## 2. Demo Software

We share the demo software for our saliency detection methods and the saliency cut application. We provide an installation program 'Saliency.msi' <sup>1</sup> to set up our software as well as necessary dependencies and sample data. These dependencies include "OpenCV dlls" ('cv210.dll', 'cxcore210.dll' and 'highgui210.dll') and "Microsoft visual studio 2010 runtime" ('Microsoft\_VC100CRT\_x86.msm', 'Microsoft\_VC100\_OpenMP\_x86.msm'). The installation program creates the following files in the user-specified path: <sup>2</sup>

- \$InstallDir\$/Bin/AttCut.exe
- \$InstallDir\$/Bin/cv210.dll
- \$InstallDir\$/Bin/cxcore210.dll
- \$InstallDir\$/Bin/highgui210.dll
- \$InstallDir\$/Bin/ImgSaliency.exe
- \$InstallDir\$/Data/Src/0\_0\_272.jpg
- \$InstallDir\$/AttCutDemo.bat
- \$InstallDir\$/SaliencyDetectionDemo.bat

**Saliency detection software.** In this software, we implemented the following methods: FT[2], LC[8], SR[5], LC[8], our HC and our RC. (The C++ source code will be introduced in Section 3.). After copying the original images (in \*.jpg format) into the folder '\$InstallDir\$/Data/Src/', users can directly get salien-

cy detection and evaluation results by running '\$InstallDir\$/SaliencyDetectionDemo.bat'. In order to avoid this program exiting without evaluating the different approaches, the manually labeled ground-truth binary masks (in \*.bmp format, downloaded from the public database introduced in Section 1) should be placed into the folder '\$InstallDir\$/Data/Src/'.

After the program finishes running, it produces results in the folder '\$InstallDir\$/Data/Src/Saliency/'. The resulting saliency maps are stored in \*.png format. Statistical information about precision, recall and related thresholds as well as comparison results as in our paper can be viewed by running the Matlab file '\$InstallDir\$/Data/ShowEvaluate.m'.

Saliency cut software. In this software, we use our RC saliency maps to initialize our saliency cut method. After copying the original images as above, users can directly run '\$InstallDir\$/AttCutDemo.bat' to get saliency cut results. The results will be saved in the folder '\$InstallDir\$/Data/AttCut/'.

**Run time environment.** We have tested our software programs in common Windows operating systems including Windows XP, Windows Vista and Windows 7.

#### 3. Source Code

We share the source code for our saliency detection software in the 'Source code' subfolder of our supplemental material. The source code is provided in form of a Visual Studio (VS) 2008 solution<sup>3</sup>. Before compiling this solution, the user needs to put OpenCV libs and header files in the 'VC++ Directories' of visual studio. This solution also contains our C++ implementation of several other methods: FT[2], SR[5]and LC[8].

The source code for other saliency detection methods that we compared our methods to can be found at the following URLs:

<sup>&</sup>lt;sup>1</sup>We created the installer in visual studio 2010 with Windows 7 OS.

<sup>&</sup>lt;sup>2</sup>Please do not use disk C as the installation path if your operating system is windows 7 or vista. Our software does not have permission to write files there.

<sup>&</sup>lt;sup>3</sup>We share a VS 2008 solution instead of our own IDE environment VS 2010 since we suspect VS 2010 is not yet popular.

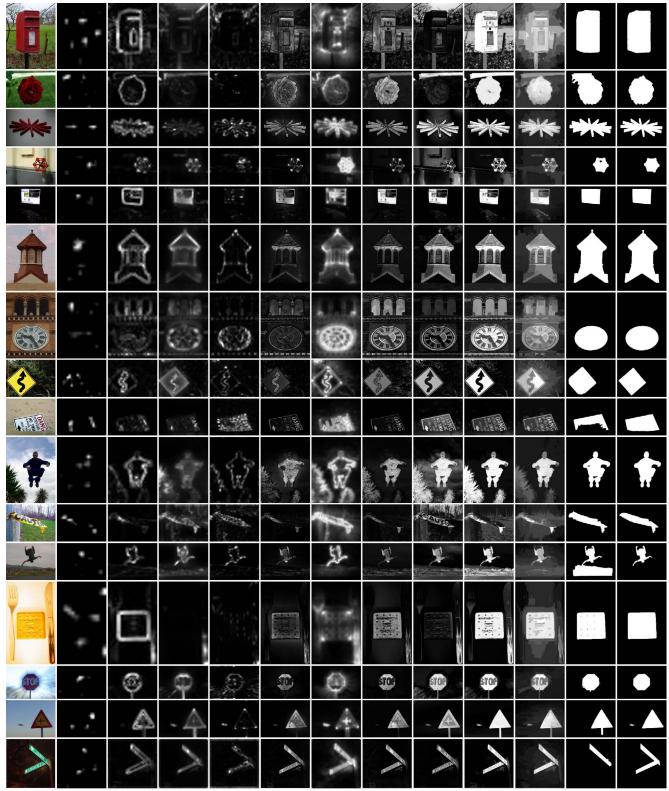
- GB[4]: Matlab code or C++ link.
- CA[3]: Windows binary code
- AC[1]: Matlab code
- FT[2]: Matlab & C++ code
- IT[6]: Matlab code
- SR[5]: Matlab code

## 4. Comparison of Saliency Detection Results

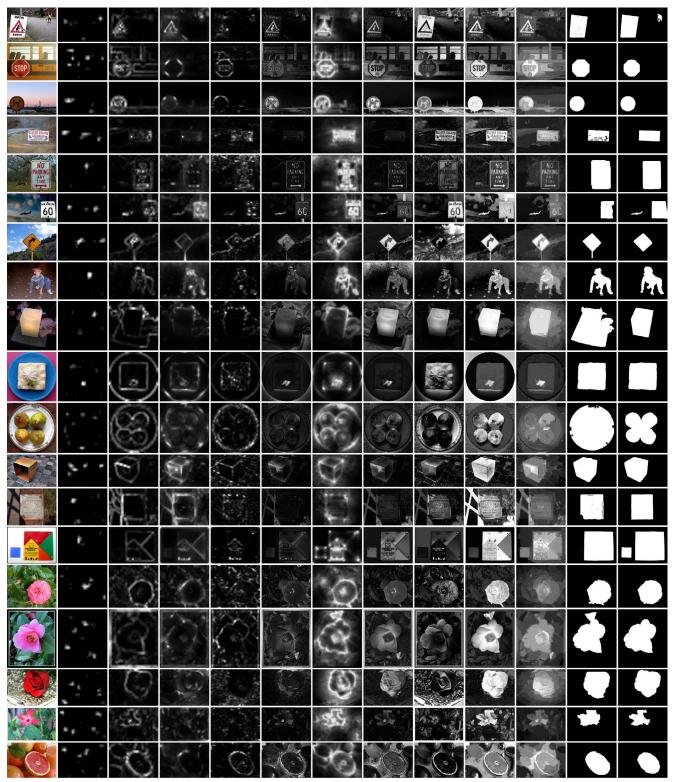
In Figure 1-61, we show visual comparison between our saliency detection methods (HC and RC) and 8 other stateof-the-art methods: IT[6], MZ[7], GB[4], SR[5], AC[1], CA[3], FT[2], and LC[8]. We also show comparison between our saliency cut results and the manual ground truth in these figures.

## References

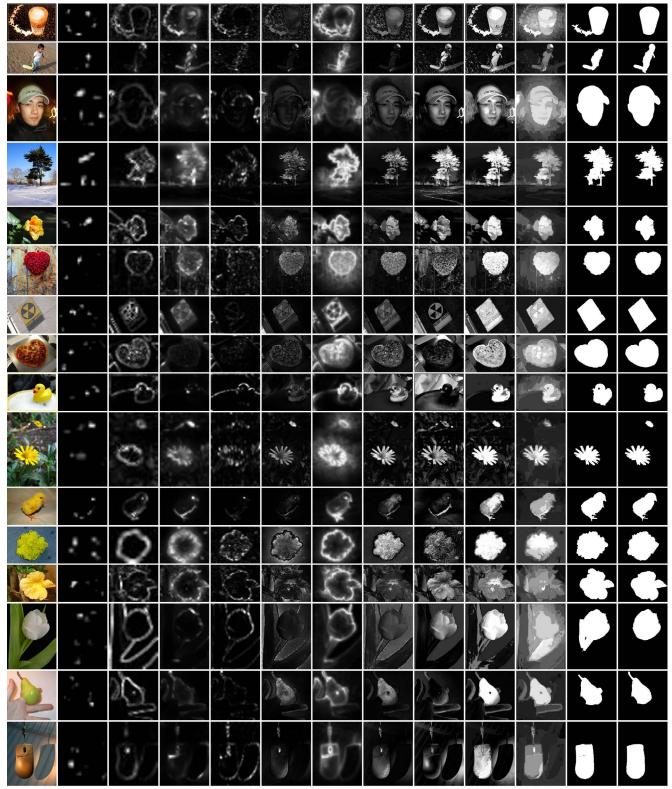
- R. Achanta, F. Estrada, P. Wils, and S. Süsstrunk. Salient region detection and segmentation. In *ICVS*, pages 66–75. Springer, 2008. 2
- [2] R. Achanta, S. Hemami, F. Estrada, and S. Süsstrunk. Frequency-tuned salient region detection. In *CVPR*, pages 1597–1604, 2009. 1, 2
- [3] S. Goferman, L. Zelnik-Manor, and A. Tal. Context-aware saliency detection. In CVPR, 2010. 2
- [4] J. Harel, C. Koch, and P. Perona. Graph-based visual saliency. Advances in neural information processing systems, 19:545, 2007. 2
- [5] X. Hou and L. Zhang. Saliency detection: A spectral residual approach. In CVPR, pages 1–8, 2007. 1, 2
- [6] L. Itti, C. Koch, and E. Niebur. A model of saliencybased visual attention for rapid scene analysis. *IEEE TPAMI*, 20(11):1254–1259, 1998. 2
- [7] Y.-F. Ma and H.-J. Zhang. Contrast-based image attention analysis by using fuzzy growing. In ACM Multimedia, pages 374–381, 2003. 2
- [8] Y. Zhai and M. Shah. Visual attention detection in video sequences using spatiotemporal cues. In ACM Multimedia, pages 815–824, 2006. 1, 2

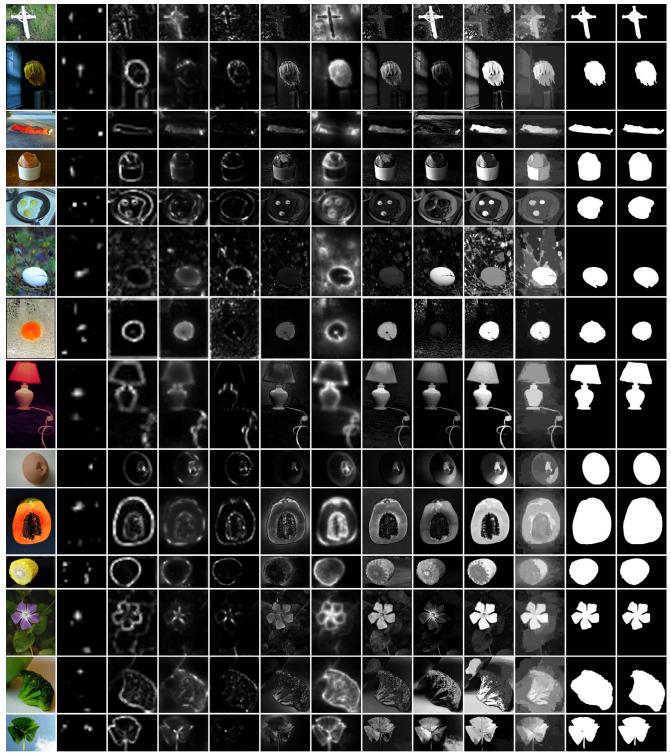


(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 1. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

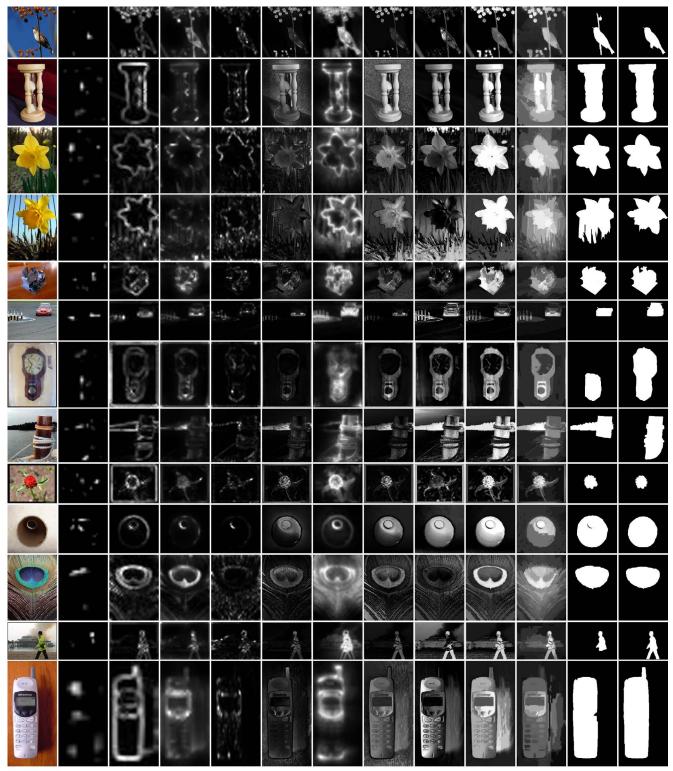


(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 2. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).





(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 4. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 5. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

	<u>†</u>							88888522758				
	• •	1		55 - 55 - 55 - 55 - 55 - 55 - 55 - 55	R							
	r r	1. 1. C.	it.		W.	T	A.			A REAL		A
		10		1		0					4	
	•**) .***	E.	1	C		3		N.				
	-	0	2	1		0	and the second s			4	•	•
14	٠,	30	SE.	33	A A A A	A.	A. M. A.	-	ALL ALL	A.		
		A	1	1		2		A	2			
*		$\odot$	3	50.3			*	*	*	*	*	*
	<u>.</u> -		P			19			w w			
***	÷.	63	5	S		**	25	**	*	*	<b>\$</b> 7	<b>\$</b> 7
	, <b>.</b> .	1	- 10		- NX	W.	Ŵ			KX		KXX
	1	ŝ	S			-(2)						
		1.1.1.1					States and a set	CARGE WALLAN	S. Tring	S. 107 103 11		
		Z							X			

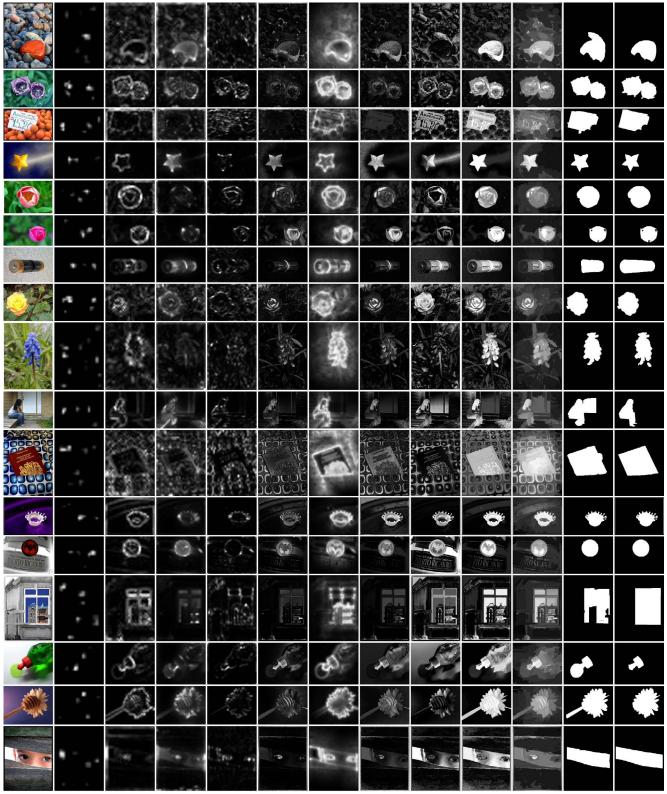
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 6. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

			SZ)	Constant of the second	A	See.	R	AL	RE		1	
	4	Ð	0	0	(i)	80				5	<u>ک</u>	
MA	₽	(in)	News.	(a.A.	15-16-2	had	Nº P.S	A.A.	1			
		o de	a en	it and	in the	as and	ster et	ia de		in the		
	•~~. •				(Ine)				-		*	
	1.	\$3	<u>Se</u>	10	902	83	27	10	82			<b>Y</b>
	<b>-</b> , <sup>11</sup>	5	3	3		S.	R	R				•••
1	•	· · ·	her	n. 1993 -		25	2	2.2	12	1	2	2
R	ŗ	Q	R	ç		8		<b>\$</b> 2.	<u>a</u>			
		G	100	0		9						
	$\hat{\boldsymbol{\varphi}}_{i}$	Q	$\bigcirc$	$\mathcal{O}_{\mathbf{x}}$		$\mathbf{Q}$			$\mathbf{O}$	9		
í.x.	<u>_</u>	S.C.	1	Z	n vy De mer de seu	N.	an a	27	N.	1 m	Ľ	V
		B	Sel.	3		B		N.	-	AN A	<b>*</b>	<b>2</b>
	5	and the	5-2			A A						7
	-1	18		S.	-S	18	S	9	7	- 77		<b>*</b>
	-	12		1000		the		- A				~
- <b>-</b>	• •	ರ್ಷ.			enter.	-630-	des.		-	- 23		•
		0				t) C	*	O.				

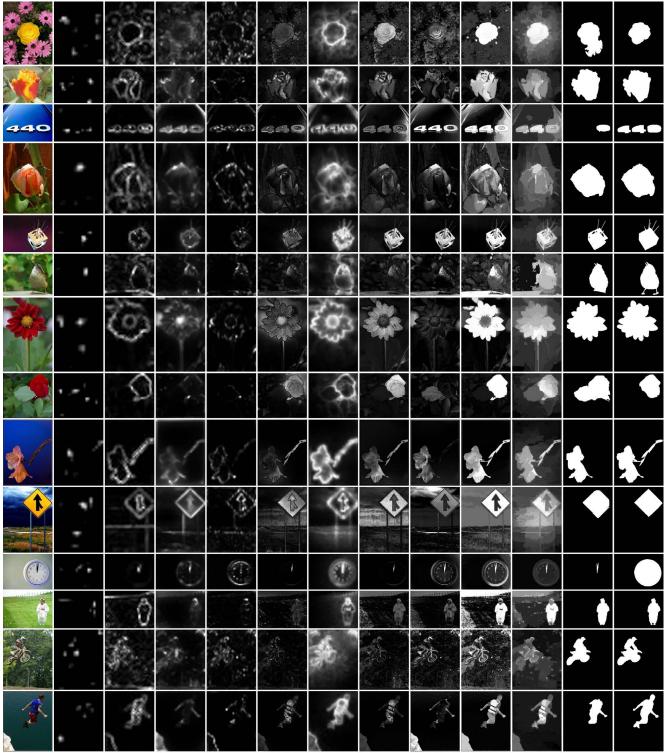
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 7. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

	, *,	0	12	Ser.			A	1		1	Q	<b>e</b>
t	``	10.00	1	and the		400			*			
V	۱. •	S	Y			C II		V	S	V		V
	. ** -		39 D.	200		1939.	Carlos Ca					
	1,	(Ex)	2	Ser.	Sec. 1	1 To	Ser .			A.S.		
	.* ‡	220	1.25	The second	and the second	Sec.	Y	V.	Ý	¥		
<b>d</b>	•	ð.	6.	3	Č.	Ċ,		<b>.</b>	<b>.</b>	<b>.</b>	6	
		300	EV.	0		2						
	₩14. <sup>2</sup> .					) (	國國防	國際府	國國際			
	Ţ	۲	-			۲		O		0		
2		5	2	50		R	Ľ		3			
N/JO	. • • . •	00	Der.	12	00	3ric	00	AND -	ot	50	<b>i</b> no	
	×,	No.			2.1	and and		-			Saturday.	a second and the second se
		0	$\bigcirc$	$(\cdot)$		0		$\bigcirc$				
ł		de-	1	a former	X	A	X	t		1	*	
e (1)	e	Sat	5	A		CANT .		S.	-	-		
		S				(g) CA[3]						

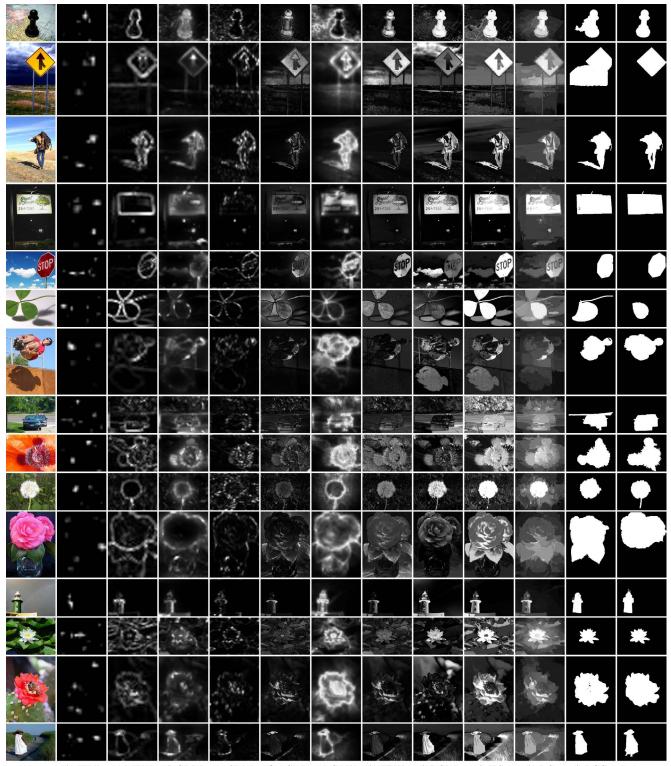
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 8. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



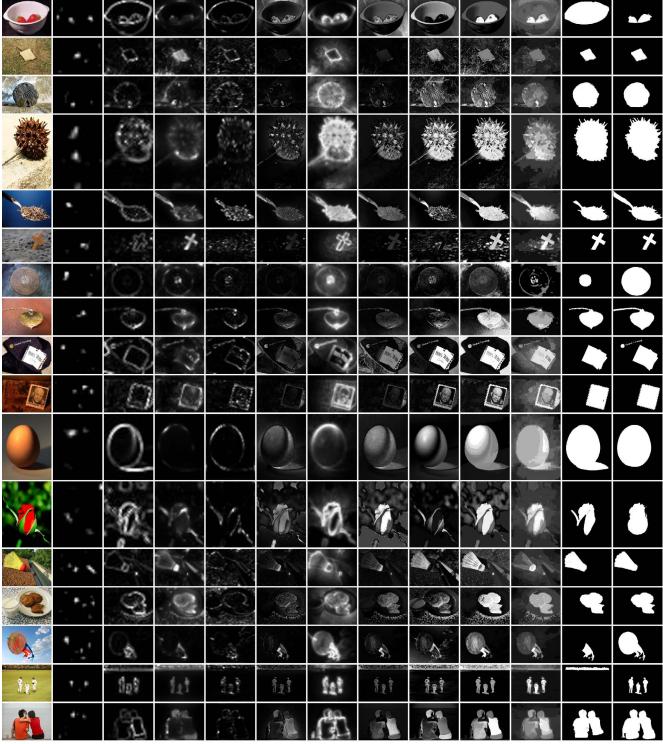
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 9. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 10. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



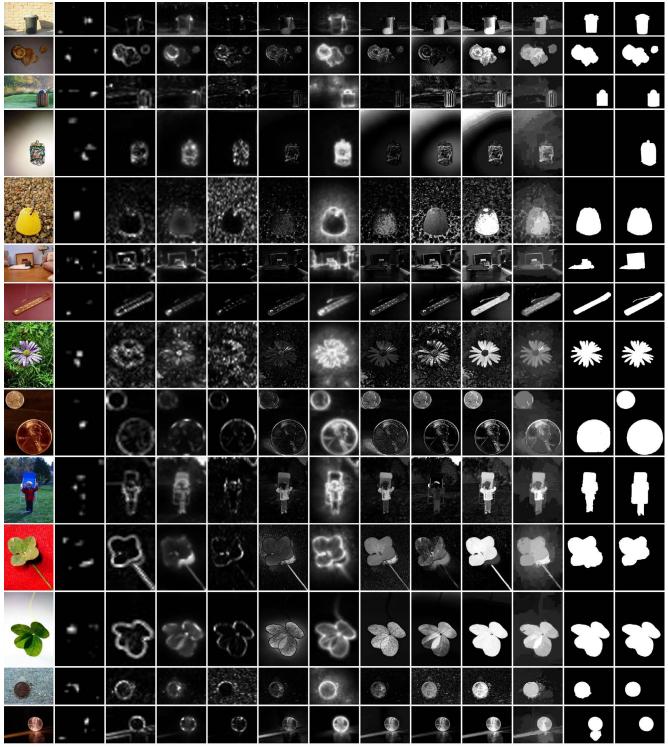
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 11. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



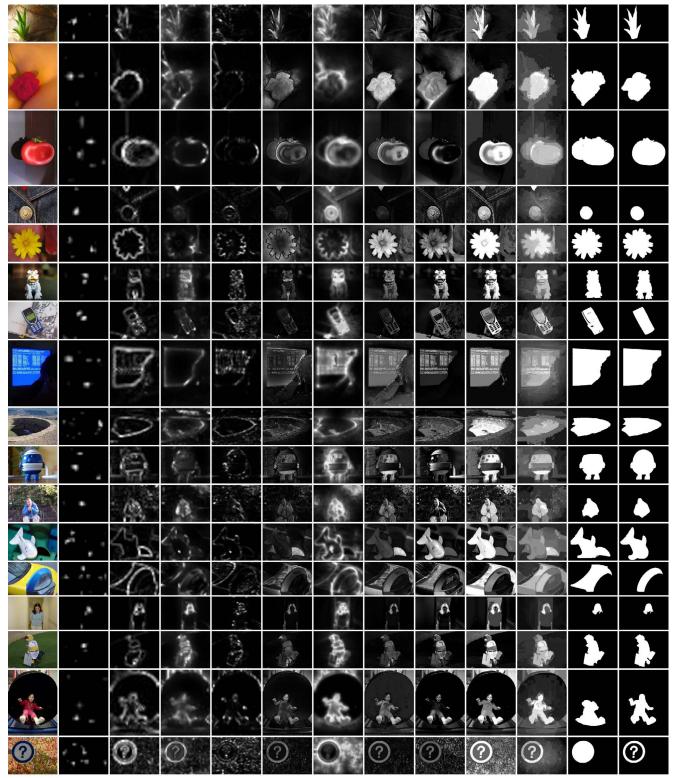
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 12. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

	• •	1.0	1	eras							Ł	ì
2	• 17	R	19	3.2	1.9	2		2	2	1	1	1
-	·, ··	B	S	30	(Q))		2					33
W	•••• ` •	3	1	C		T				1	Ũ	
	•	$O_{\mathbb{Z}}$	2									
	, ••	0		."		••						
T	ł.	O	O	D		0		D				
	1	(1)	(III)		(1)	CTL.	( <b>(3</b> 3)					
	•											
	4 -	61700	5	100		A				Him		iii)>>
	• '		1. N.	50.2	*	and and					•	×
	<b>a</b> q -	10	N	- A.	Na	N	15	NSI -	₩.	N	λ.)	
a la		any of	in a	an a		8				Nigo .	-	1
	۰ <b>•</b> )			G								
ČČ		124	3:	145 C	ĊĹ	1	ĊĹ	ÊÊ	ť	33	<b>K</b>	<b>H</b>
WARNING BAR Area Paratelian Area Paratelian Ar	ч <sup>а</sup>	1			WARNING	1.	WARNING	WARNING To receive the second	WARNING 	WARNING		WARNING
	٩.,	2-		S. C. Mare		4	(Alerton		Contraction of the second	X	-	
	1.		m			m			Π			

(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 13. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

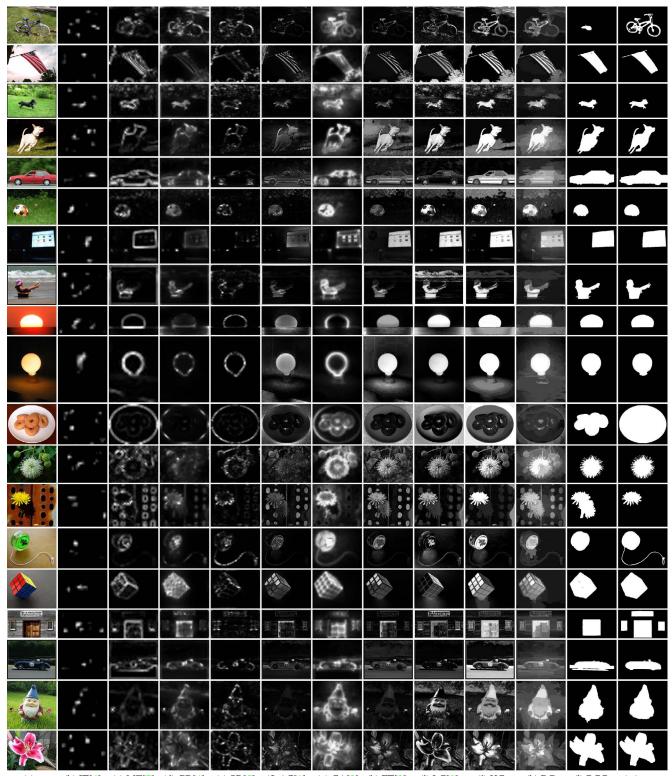


(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 14. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



	: * * < *	Q =	0=		Q =	Q -	<b>Q</b>			•	Ŷ	<b></b>
	·**	\$	(in)	t.		1					$\blacklozenge$	
R	* . ·	R	Q	R	R	R	R	R	R	R	R	F
	•	8993	2001	878	<b>883</b> °	888	888	1011				****
	-	R	(6)	<u>C</u>		Ca						
A	-	R	3	1.3		3			Q			
	£.,7	67	8.7	3.7		1.		13>1		1		
11 🌺		.0	. 1020	13		-	Aller	1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1			*	*
	* <b>#</b>			H.	F	H		M.	X	Ŵ		
		Fal		TEL.		[]						
	<u>،</u> ~		all of the second	startes,	din voor	and the second	- Anasani	retonsecution	- Anianania	t alterisecont.		
		No.		and and	*	AND STATE	1		Mart -	A.		
	$\hat{f}^{(1)}$	O	C	6		(3)		Q.	-	0)		
	- 6					A			-			
		0	0	Sec.		62	P	<b>O</b>				
	•	9	0		a service	1						
200	$k_{i}^{2}$	Da	De	and a	a a	Ba	a g	The se	<b>A</b> 32	<b>A</b> a		
~		0.0	er ?	()	15490mm	9						

(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 16. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 17. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

No.	, 1ª	-U		and the second sec			Ho.	HO	CON	COH		
-	* *	30	mir.			20		38	30	30	3P	
6		0	0		Ô	$\Theta$	Q	Ô				
*	r t	50	and the	20-		ALL A	×				1 to	
	۴.	To	and a	100	after the second	See.	3		The second secon			7
	1.4.1	101		10		0	*		*	*	*	*
	4	Q	"G	3		C.	Ì					
			212			悉						
	ř.,	63	Sal	Series		S.			**		**	*
	•		a	्या प्रश्न खुर्वे युर्वे		a story	1997 (1)	and the second	and the second			L'
	t i	9	(2)	Q		P						
-	17	0	Ge	Che la	Ste.	(a)	Sec.	and the second s	A.	- Are		
	*	0	0		۵	0						
		0	2	134		EY.						
	: *	0				3				C		
	. ?	E.	$L_{J}$			$\mathcal{L}$ = $J_{\sigma}$		Townsee.				
W.	* n, *	0	3	123	Y	03	WY .	William State			*	***
R	: *		12			2	N. S.		A.	No.	•	27

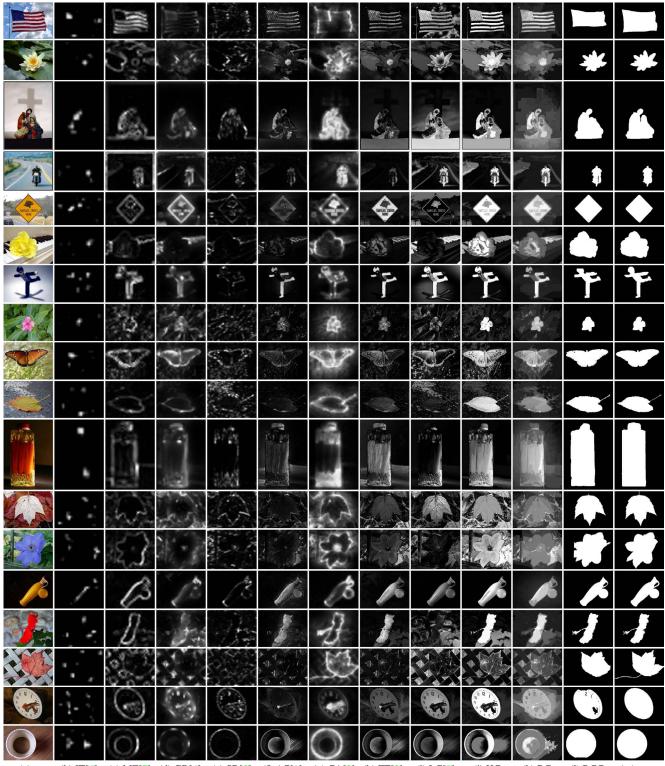
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 18. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

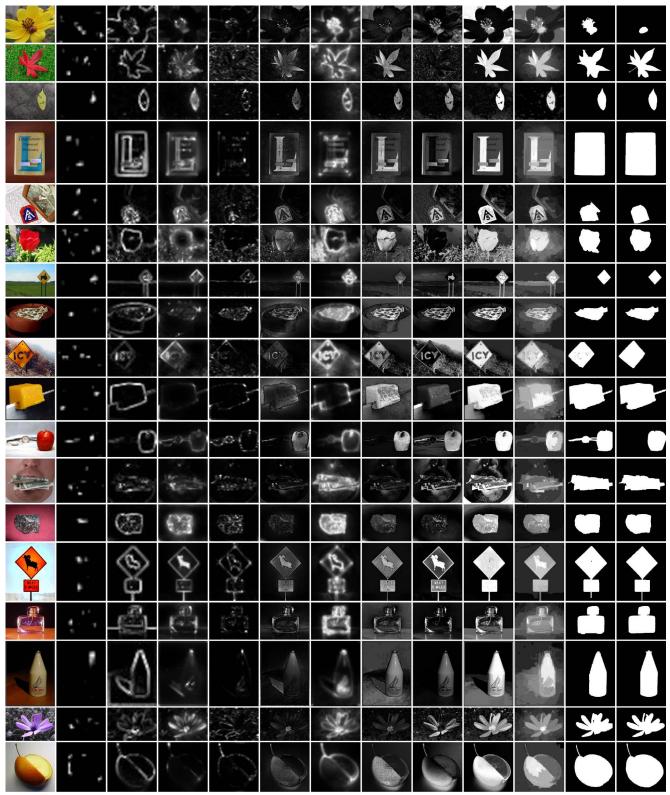
Ó	4	0	Ŷ	Q	(i).	Q	(B)-		÷.			Ų
	4°	6	-	· 6.	(The second seco		- Andrew Contraction of the second se	an.	<b>.</b>			
	۰.**	5	10	3		e		0				
	`• •	5	10 4	1. 4	S.	0	A State		1			9
	승	い。	No.	E.		tQ.		-		C.		
		3	1									
THE PRASS FATERIALS						Anne d - New Yorks		THE PACES ANTENDED	THE PRESS ENTERPRISE			
	1	N.	14		0	M						
	· • .	- 45		14.55	- 2,491	ter-	10 10 M	- 362 5	0	762	7	A AN
					JÖ.							
		1		1								
		6	4									
Ø	494. 	9.	. (a)	10		6			0	Ċ		
3	: <u>•</u> .	(1)	(8	(3)	Ċ	8	3	3		6	0.0	:)
N.		1.3	1	Sec. 1		E.	A.			S.		
a suite		0	1	0		Q						
57	• 1	B/	67	Ŋ	6/	0	6/	57	57	S)		
LANE LANE LURNAL LURNAL LURNAL LURNAL LANEAD								Auran	EANE AAREAO			

(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 19. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

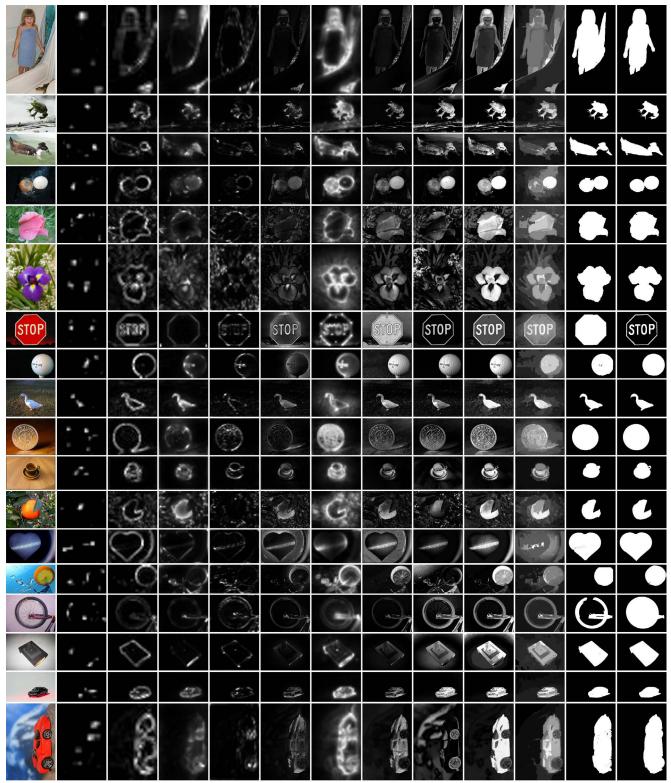
*		0.00	٨	S.		200	*	Å		苏	×.	Х
*	۶.	4	4	A	A .		À .	A		1		▲
	$\left\{ \cdot \right\}$	0	Ø	Q		Ø						
	e -											
2		4	7	12	7	×	7	7	7	$\lambda_{\rm c}$	¥	X
0	• 1	0	Ċ	Đ.			1. All and a second sec	æ.,	2	19. SA		
	•	0	4.2	and a state		0						
		in the second	1.2			Sans -			*			*
			3			$\langle \mathcal{S} \rangle$						
	1 •	10	#			13	14 ·			*	<b>X</b>	-
	,	\$0	10		×	4	Red a				,	
	1					O					Ö	
	£	(a)	1		Siz ?	Ser.						
<u>۴</u>	- r.		1			e a		÷Ì.				†
	÷		-	100							Ŷ	
	.*	8	N.	S.		E	A					
27	- r		-7	and the	Tel	4	SPA	7		1	1	T
-		~×	14	139		18						
8	(b) IT[6]		(d) GB[4]	6.					(i) HC			7

(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 20. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

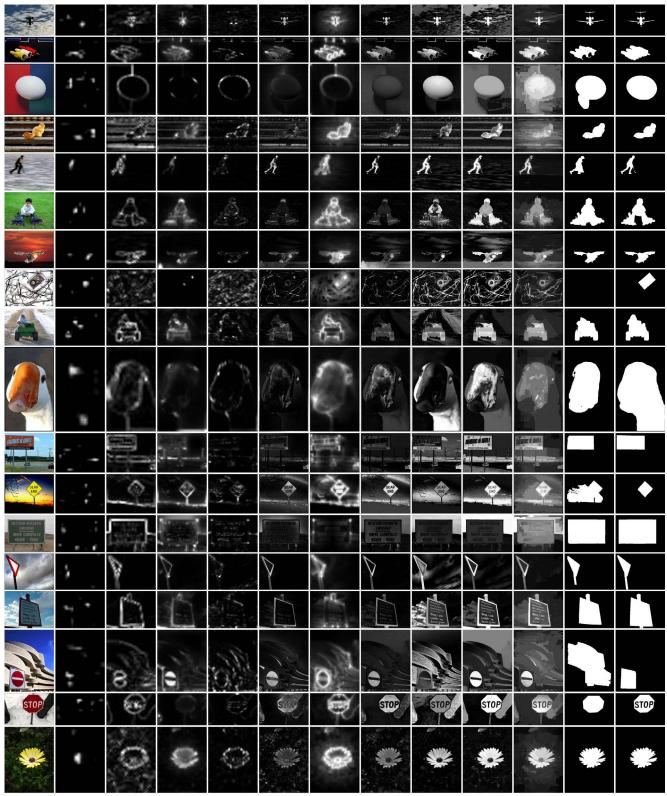




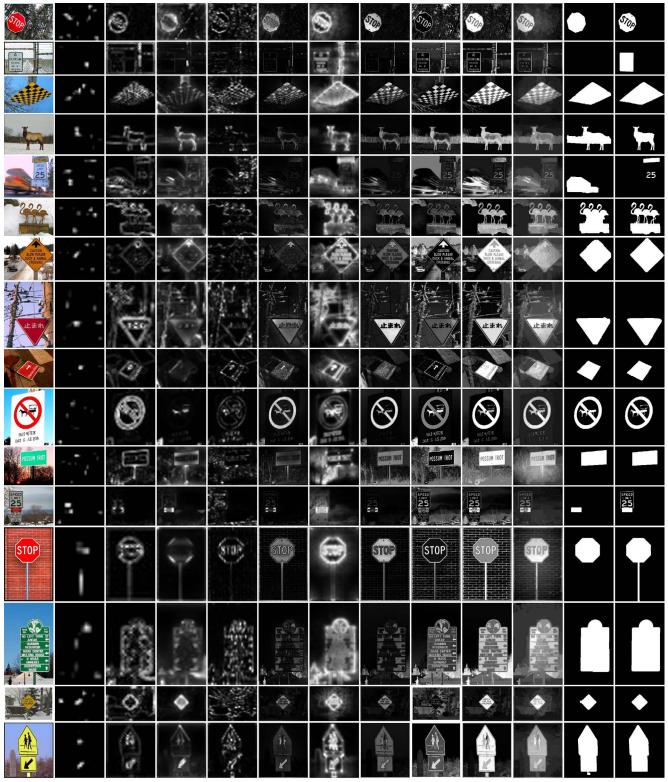
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 22. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 23. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



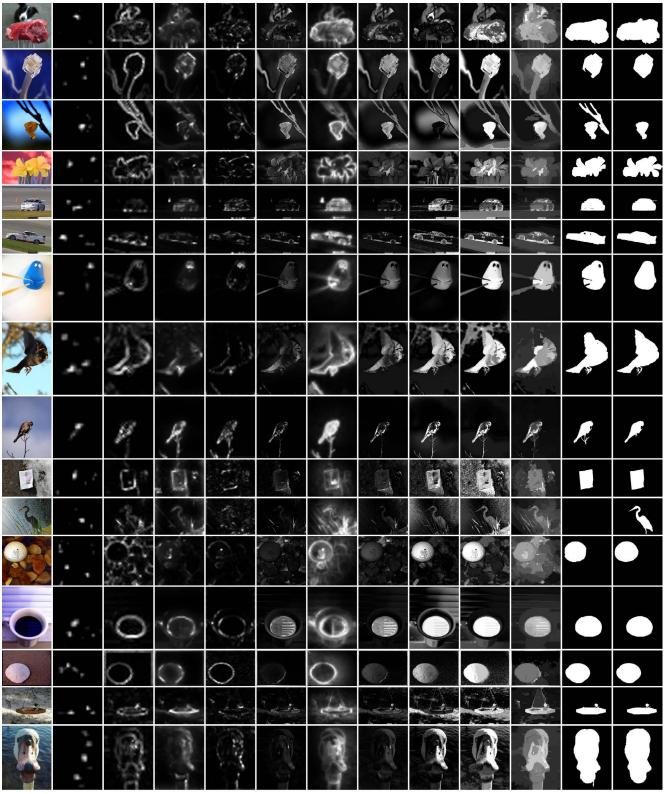
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 24. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



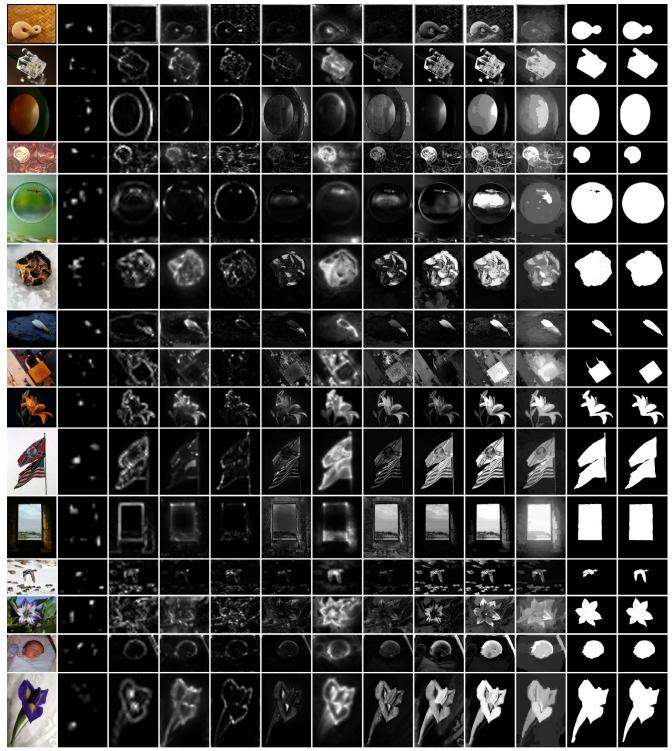
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 25. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

EAST 666	÷	330	556 	1840 - 19	EAST 666	1241 (846)	EAST 666	EAST	EAST 666	EAST 666	₩	EAST 666
KEEP OUT	, t=	1			KEEP OUT	T	KEEP OUT	KEEP OUT	CANOD KEEP OUT	KEEP OUT		CANCED KEEP OUT
<b>%</b>	e. 1 a	0	Sec.		2	Ø.						<b>)</b>
- E	۳.		-91	2		9						
		200	· []	o file o		0		Point of the state				
	ŧ.	and s	25	1953	-times	All so	- Carlo	AS		Ab	4	4
		Ô.	12	029-0 		$\mathbf{O}$					•	
	15	R	Ð	3		3						
		0	Cia	$\bigcirc$		0						
		Ser.	94.9 94.9			No.	R	T				
		3				3		(in the second				
	÷	8		0		3	ut					
Ź	${\rm P}_{\rm c}(k)$	あ	No.	2	×	No.	1	×	Ź	Se la construction de la constru	Ź	
1	1	6	1	۲	1470) 1			0		0	Y	8
	۰.	(0)				5						*

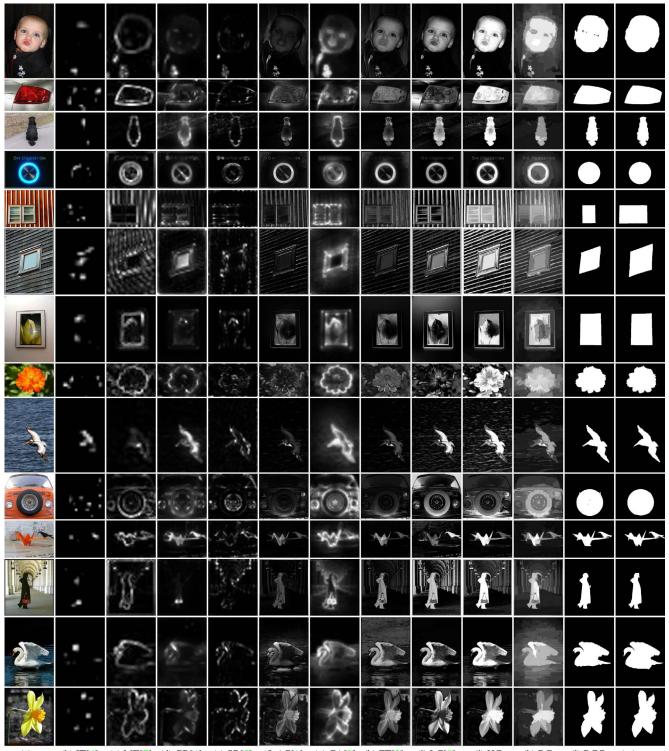
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 26. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 27. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

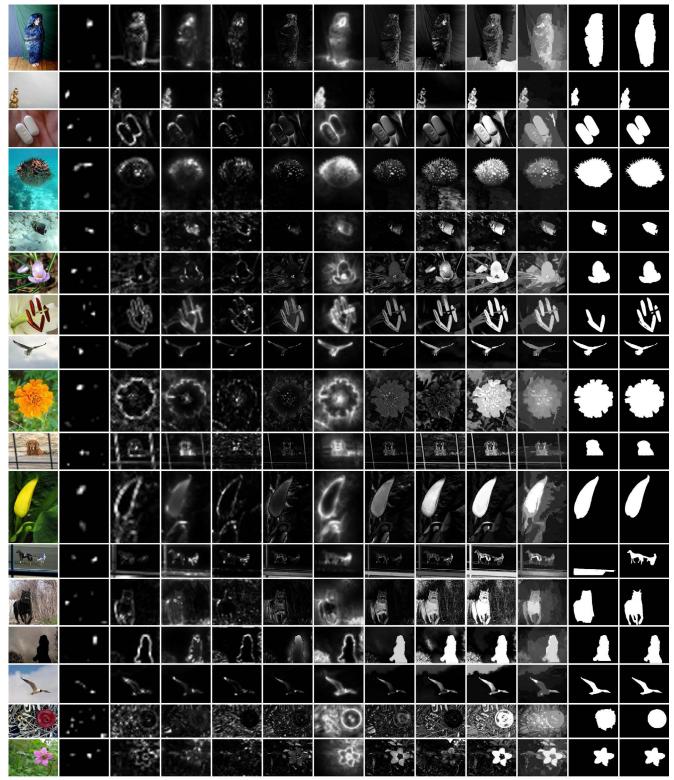


(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 28. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

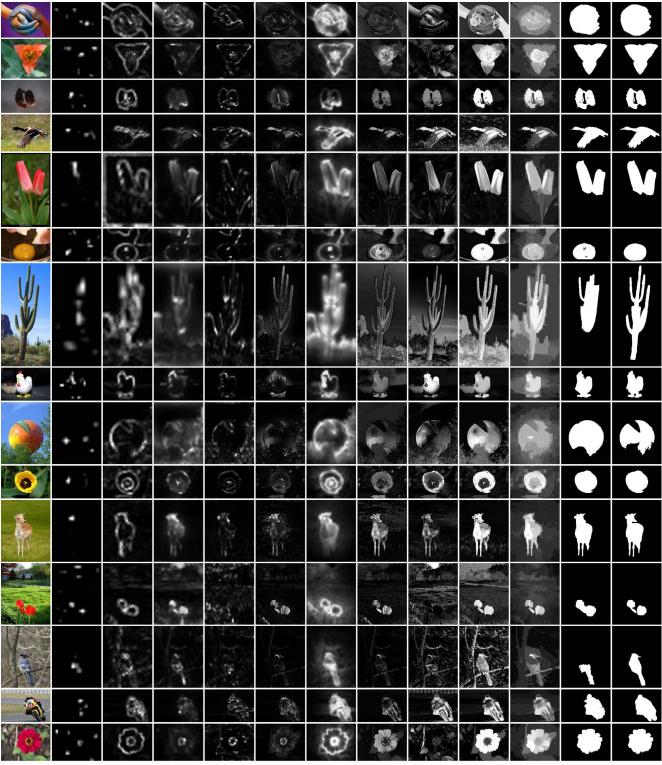


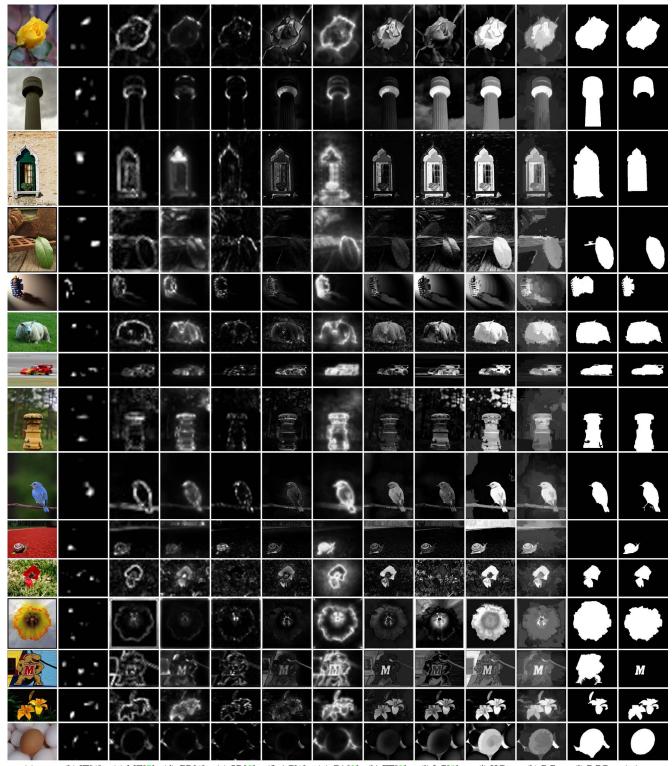
		00			Ŏ.	Q	<b>Q</b> ,	O.	Ô.	•		
		Ċ		E Vo	(Cr	( b)	(Br					
VEL	• 1	les	VER	MA	\/	3kl	\L	NF				-
		$\odot$	1	No.					MAR		i Vinne	
	•	0	0)	$\bigcirc$		•			$\bigcirc$	$\bigcirc$	0	0
	÷ .	P.	一部	25	1 and	te.	The second			- For	7	
	·**	Ŏ	Ŏ.	0		0,						
	+	Ø	14	3	*	0	*	*	*	*	*	*
2	* _	5	10	1	1	0	2	a	-	Â.		٠.
• \$	• :	- 3		· .		\$		•		. 1	×	*
	4 ° 199	6	2.2		de.	149	de la		-			
0	<b>.</b> .	0	- 37	9		0	0	- 0	-0			
Y		W.	Y.		N.	Y	Y	V	¥	¥	¥/	¥
Ø	1	0	A.S.	Ð		D			٩			
16	-4	100	×		A. S.	¥\$	Her-	*	*	*	•	*
	و • €	0	0	0		0		•	•			
5	<b>*</b>	Si		10		300	States	52.0		520	<b>Fin</b>	
	۰.	B	E.		in the second se	3	La la					
•		0	0	0	$\bigcirc$	0	0					
		0	6			$\mathbf{C}^{\mathbf{a}}$						
(a)	(b) IT[6]	(c) $M7[7]$	(d) GB[4]	(a) <b>SD</b> [ <b>5</b> ]	$(f) \land C[1]$	$(\alpha) C \Lambda [3]$	(b) FT[2]	(i) $\mathbf{L}$	(i) HC	$(\mathbf{k}) \mathbf{PC}$		(m) q tr

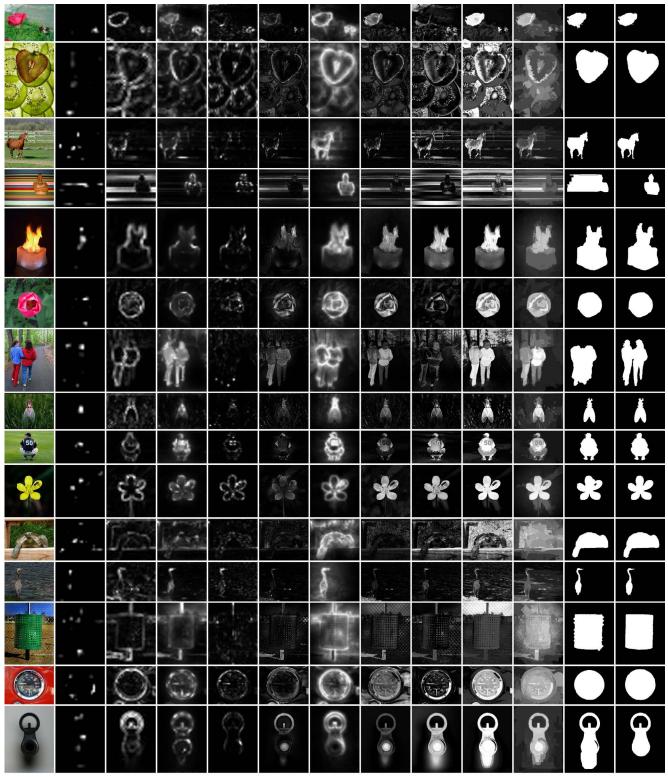
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 30. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 31. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).





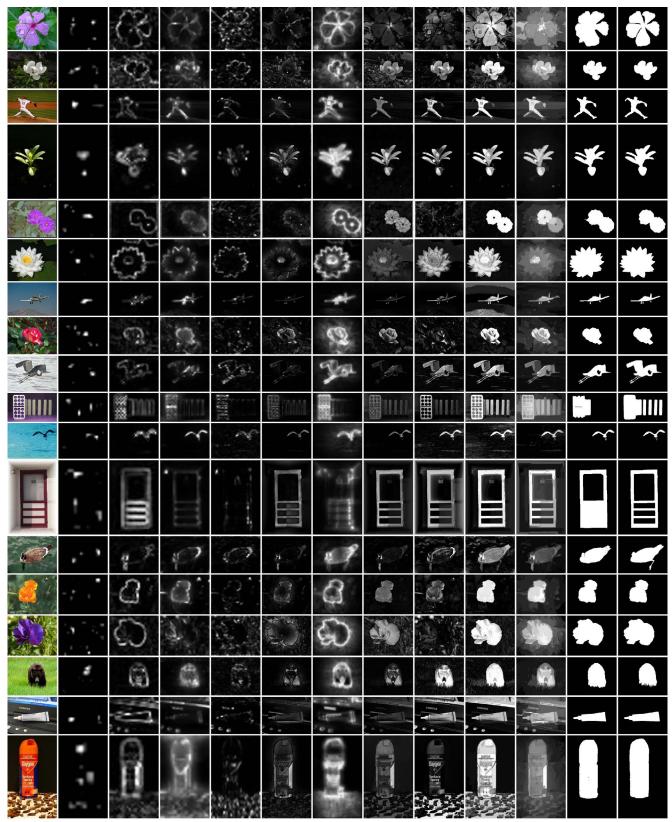


Ż	. الحار	0	0	C.		0	C.					
	÷,÷;	0			2 - The Real Property of the P		Rota Ba		0	S.		
0	`	100	A.	à.		ふく					$e^{-\frac{1}{2}\frac{1}{2}}$	
¢.		0.		ġ,	Sold Con	C.C.				*	₩	×
<b>)</b>	• •	B	6.	5		E.S	A	R	<b>B</b>			
	<u>ب</u>	R. R.	Ø:	Ser.		21.2 105	No.					
(	•	3	2		5	2	C	C	r	2	L	L
	•	0/1	San San	6	No.		No.			10		
		5				3						
	· . •	2	2			D.	2		2	-		
	÷	A	(in the second s			S.	R		RD			
		$\mathcal{L}^{+}$	L			P.J.	Ľ	Ľ	R	L		
	•	800	11 20			8					T	Y
		G.	No.			2						<b>(</b> )
6		0	Ó.	A)	Č.	0						
	, 1 s	\$	0		and a	8				- 23.		
					(F) ACHI				(i) HC			*

(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 35. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

*	÷.,	0	N.	N.			*	A CONTRACTOR	**	×	*	*
	•	3	173	2	03	23	X	3	2	X		
	-	12-				#						
	Ì	- the	the second	1 Cape						K	k	
Ø		107	3	and and a second		T		AT .		(*)	6	6
		2	1	-Ca		A				-		
	21	0	true	-		13						
	۹.	0	al de			52		**				
	-	0	19			0						
	5	(a)	No		- X <sub>N</sub> :	(a)						
Copel For		ଁଠ	0.00	18.00	COPI TOT	3		COPI -	COPP. CA	COPIE		
	1	0	0									
		0	8	07	19	9		88			•	Y
	44	0	0		a O a	0		- Co				
<b>87</b>	$h_{-\vec{z}}$	B	S.S.	Ser al	C.	23	S.S.	Q: Co		Se la compañía de la	Y	7
	14	Se				ζΩ,						*
	1	-	0	1								-
		0	50	1995	J.	9	Star Star			-	•	۲
×	•.		×	N.	-	*	*	×	*	*		

(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 36. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



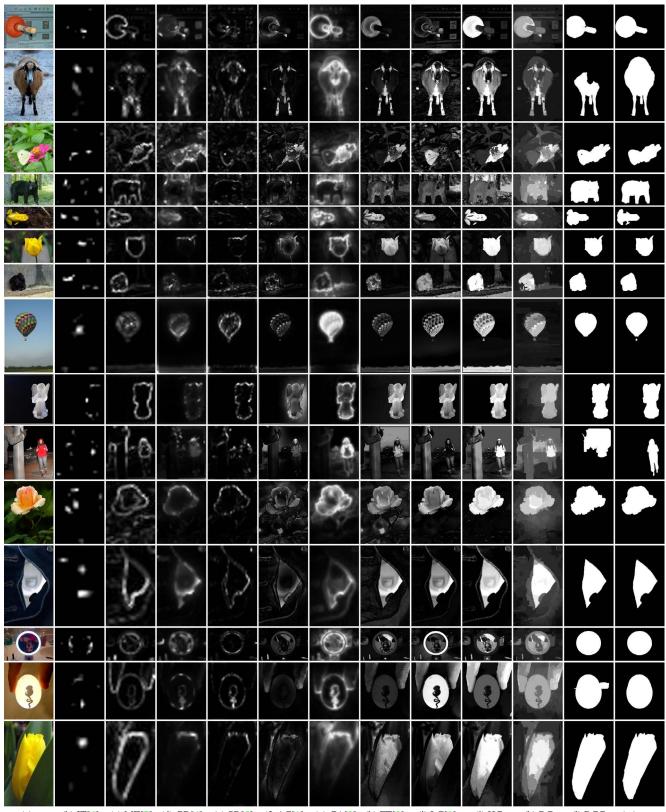
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 37. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

		6.	1	Sec.	6	4			Ť	Ť	Ţ	Ţ
100		3.87	1975			-						
200	• •	2	52	3						3	Ÿ.	<b>9</b> 2
Ż	,	2	1	-		the second	-	A A	2	2	2	2
24000 1000		A.		5000	40.00 10-10-10-10-10-10-10-10-10-10-10-10-10-1	195	40.00 40.00		40.00	40.00 10:51:0		
	127 10 12	0	0			0	A					
	•	5	En	No.		0						
	1 - 1 1 - 1 1 - 1										lacksquare	
	• •	75	X		16	T.	TE	Té		T	Ĭ.	Ť
	÷ .	0	$\odot$	D.		$\bigcirc$				4		
à	. /	1	à	i.		A				a si		Ň
	-	0		No.	1.50	3	25	12B		1 (m) 	4	
-	·	123	1 mgs	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	· 4035	No.	Alleria in					
1	• •			hartine make	ke a svidd o d <u>- A</u>	. 5	te a suite a'	in miller i s 	<u> </u>	an an an Array and Ar	1. 99.101	
		٢	(4)	C2	(A)	G						
		٩	*		South S		2		*	*	*	*
		2		S	to the second second							

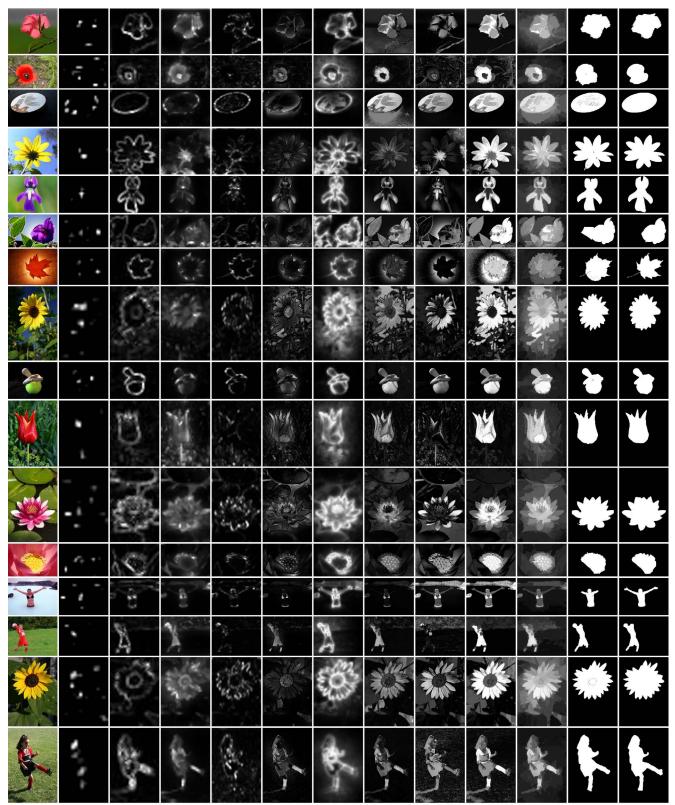
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 38. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

		See.										
	÷ .	Ser		25.9	Service of the servic	ST.	A.	S		÷.		*
×	••••	Se.	7:	52	X	32	X	X	X	X	X	Y
	2.65	3	E.		25	N.	all	All a	AP .	AK.		
<b>E</b>	਼ੇ	E.J	Line .	3	ED BAR	313	CHERON OF CHERON				-	
		5.8	12	12	12	3		12	10	12		•
Y	•	10	1	the second	and the	4	the second	r.	The second secon	A.	Ľ	7
	с. <sup>въ</sup> .	03	2-	- Alt						2		
***	đ.,	Cor.	Ser.	the second	A WA	all's	A REAL		A A A A A A A A A A A A A A A A A A A	*		
	4 . 1 .	0	2	S)	0	5						
•	• .	0		Ô	$\langle \rangle$	0	•y	Q1	0			$\bullet$
R	•	M.	P	RY.	P	R	P	The second	R	R.		R
		0			De la			Cianad Tong Chatas			•	<b>.</b>
入	,	Å	大	2	X	六	入	2	2	1.	2	大
2	*	d	R	Ċ	Ì	2	C	C	E.	6	ſ	ſ
STOP AHEAD	<u>_</u>	- Par	1	S.S.		BA		<b>P</b>	Stor C	C.L		
*		(a) <b>MZ</b> [7]	1	and the second			*	*		*		*

(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 39. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 40. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 41. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

Ŷ	* .	$\odot$	3	$\mathfrak{S}$			-		S	-	•	•
A.	1	S.	1	1	And and	S.	- Canal - Cana	A	A	A	Ŷ	Ý
30		30	· *	10	- Fr	*	s. Fr	2 - žn	50	50	ţ	*
×		3			- 5	3	. 5	× ý.	• ¥		ļ	×.
	• •	els.								i ja		
- Xa	· *	1	1	the sea	A	N	X				X	$\mathbf{X}$
ł	-,	2	1	7	The second secon	A A A	J			1		Į
4	1	6	2	2	Si .		24		<u>fi</u>	1	۲	<u>)</u>
	÷	17	14	K.	S	Ę.		Ś		₹\$		2
0	•••		Ċ-	0	0	3				3		
e	۰. بر ۲	$(\mathbf{O})$		<li>C)</li>		Ş	R		Č	R.	ø	
ês.	. * . *	file .	10	1		de-	É.	ESS.	in the second se	it is		
-	* .	÷	-0	32		2	-	3		-	*	*
		0		CA-30-9		cus alta			2 2 1			
1		30)	-33	110		- C		A CO	TO:			
*	•	2	5000 C	Ser.	×	all with	*	**	*	*	₩	*
	٠.	٩	0	ŝ	Card of	0	<b>Sec</b>	Q)		4		
	•	0	0	2	0	(g) CA[3]	Ø	D		(k) RC		

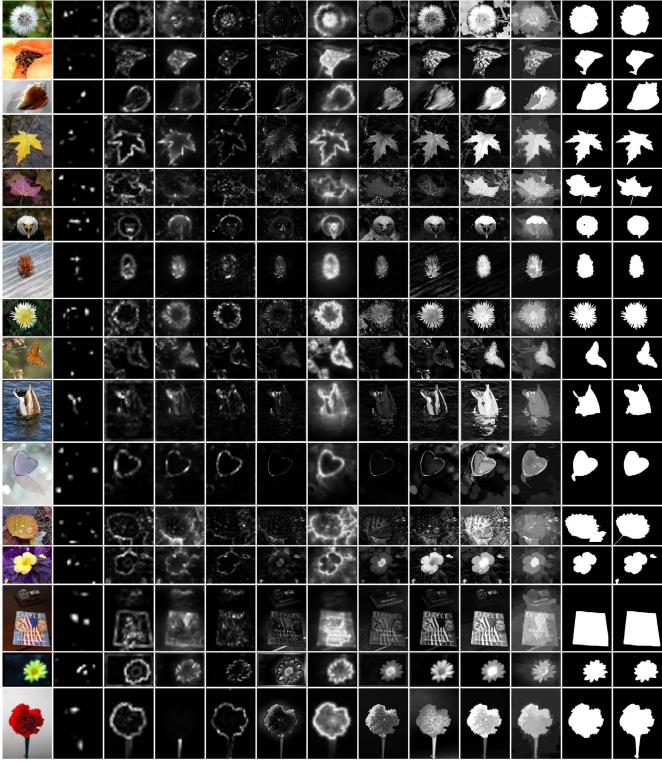
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 42. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

Ĭ	· · ·	10 m	1	8 P	A KIN	* 38					Ĭ	
	•	3	A.	D		A LA		A A				
		1. A				dial.	1 A			A Real		
	-	100		1223		B		A State			<b>`</b>	4
	e-^.,		A.S.		- y the good	-10-20				- And	2	
	- - -								i contraction			•••
	а. • • •							R.		1		<b>F</b>
202	1	52-	572	33	L.	See	a contraction	Eli	Lai	Se		<b>.</b>
2		(B)	5	23		E.	R	(B)	P	COLUMN TO A	2	2
1 M	1	.di	, W	3	hand?		1 - Mile	Les and	1 - The	A	3	<u>_</u>
	÷.,	(all	E.	18		()		(the second	Eff.			
*	·. •	Set.	梁	×	1	X	St.	-	×		×	×
	•.	0					(P.		Ø	9		
	÷ 1	XO	100	100	A CO	-0	No the second se					
	• `	0	A. S.	And		AP 1	R. S. aux			A		1
	- • · · · ·	8	i kasa		9	3 8	2		Z	1	Ζ	Z

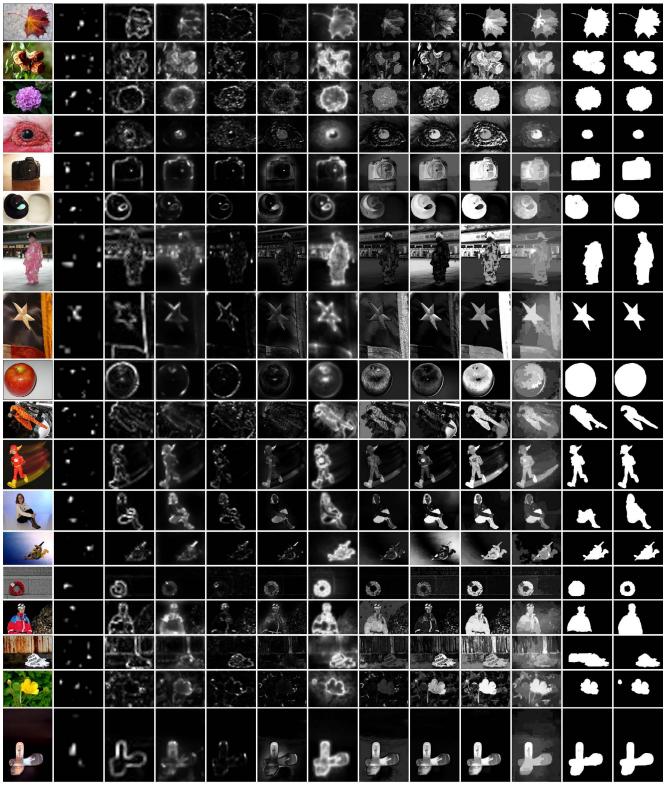
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 43. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

	•	00		6.0		X D						
	:** •	$\odot$	Ó			(3)		Ø				
	10	9	And and a second						<b>B</b>		•	
		0			1 de la	1						
	1			Elle Surger		23	19.100 (19.10) 19.100 (19.10) 19.100 (19.10) 19.100 (19.10) 19.100 (19.10)					
		2	6	10	for		1					
Ny	۰,	15	15	c.h	•/.,	24	<u></u>	Ny	No	ely-		N.
Ritty and States	÷ .	10	- 523	1. 20	Revealed in the second	)- Heri		Kiter yin Entres No.2 Kites				
		5.5	Sing	5.2		s.		A Contraction				•
	• : `.	625	6 200	C as	0	6.000	5 Toto	0 0	0 0	0 2=		
		0	13			8				-	*	•
Ŵ	*	Ŷ	Ŷ	9	<b>\$</b>	Ŷ			,	-		<b></b>
- Contraction of the contraction		the second	The second		r for	- 20	all a	- Solo	" Le	A.	*	*
Y	•	1	- ¥'	¥	X	¥	K	Y	¥	Y	¥	¥
I.	1. 	D	TY	Į?	E.	E	F	F	P			
	- •	-0	a.l	- 17		M				X		
(a)	$(\mathbf{b})$ $\mathbf{IT}[\mathbf{c}]$	(c) MZ[7]										

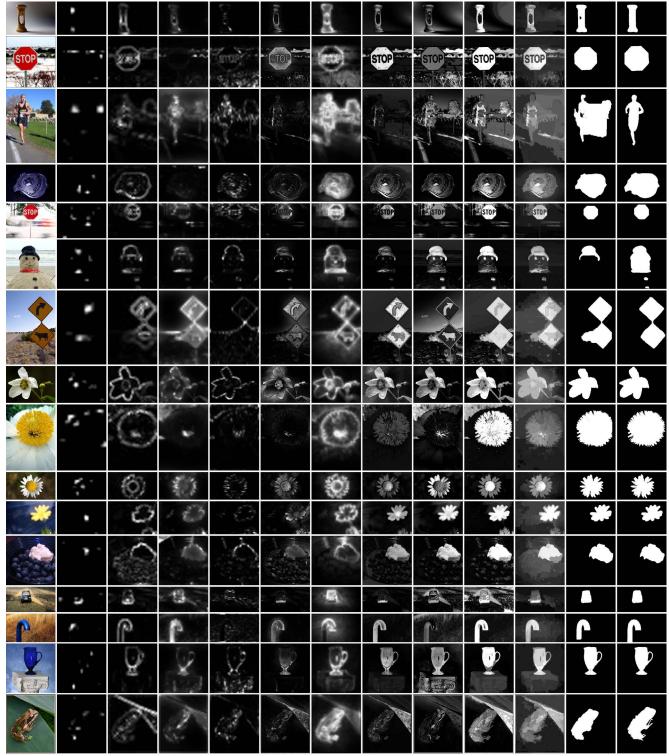
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 44. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



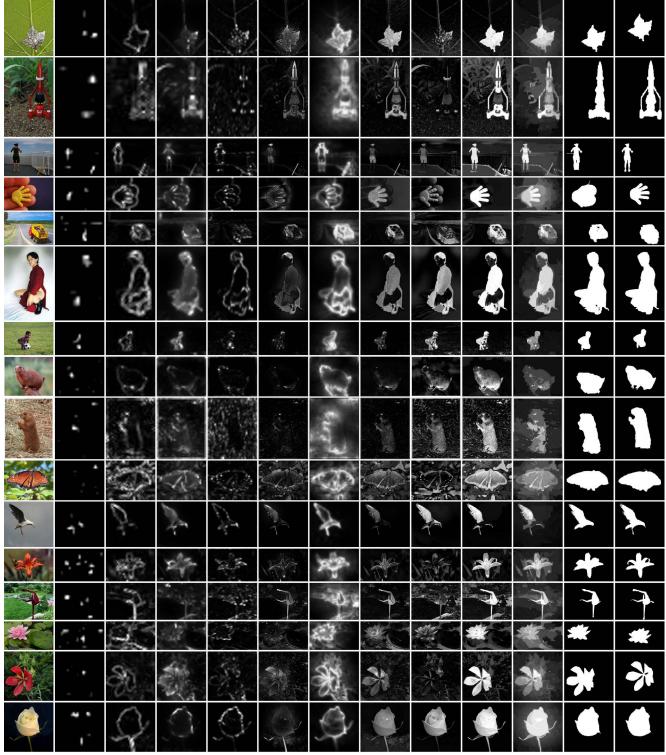
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 45. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



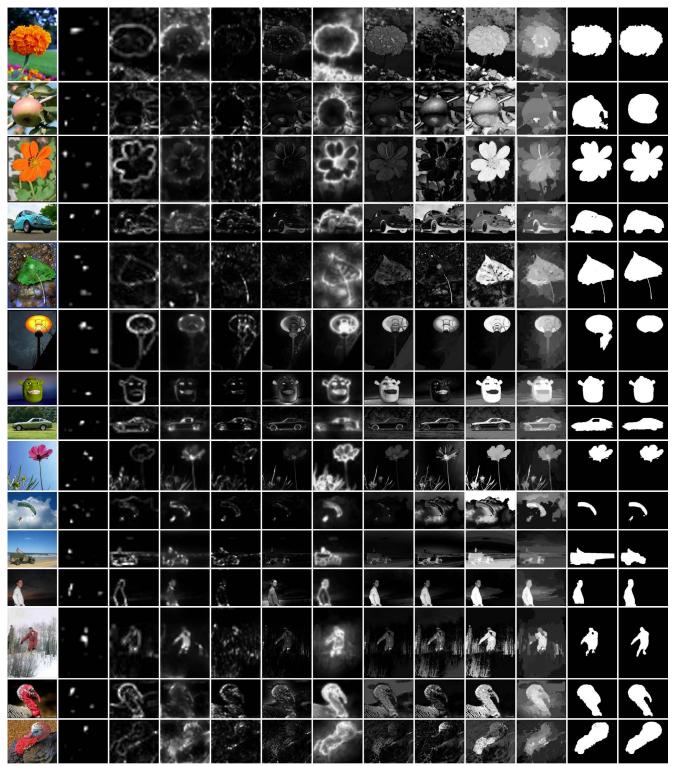
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 46. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

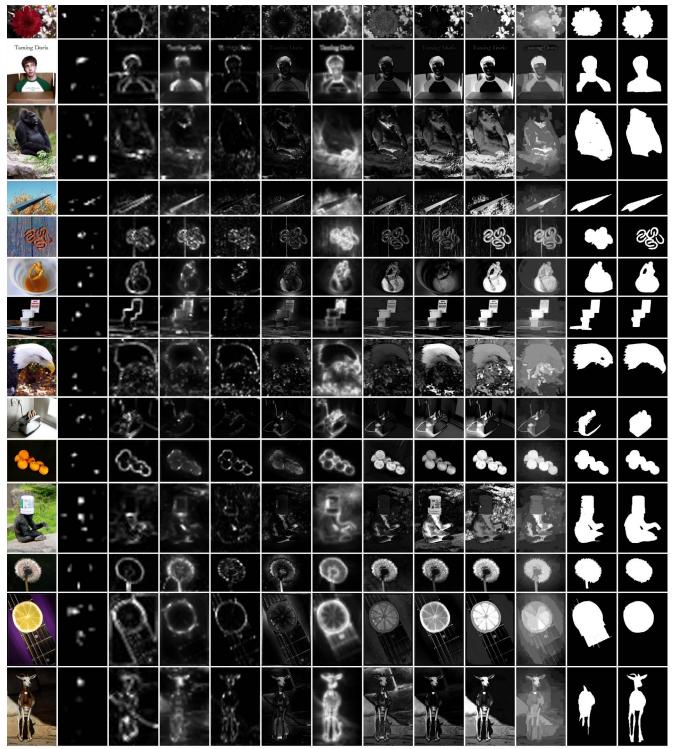


(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 47. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 48. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

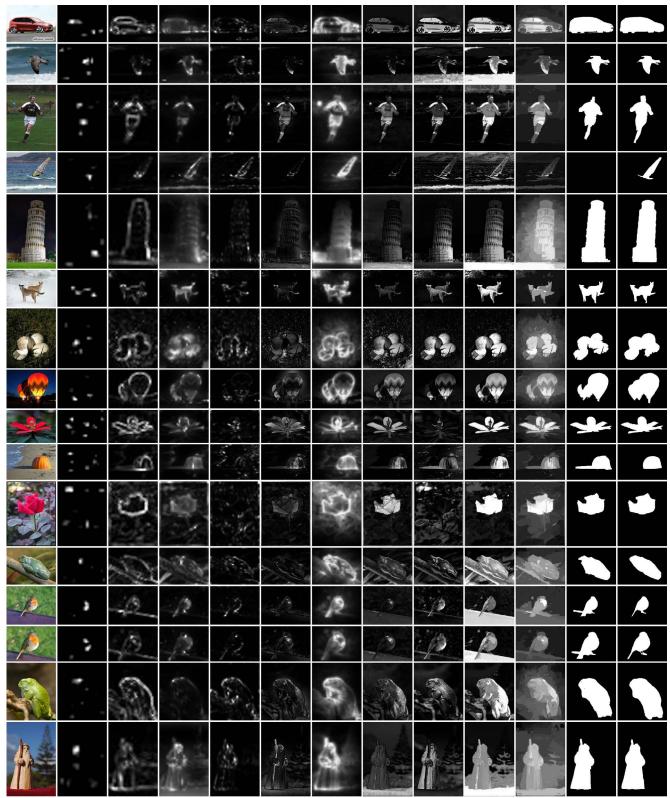




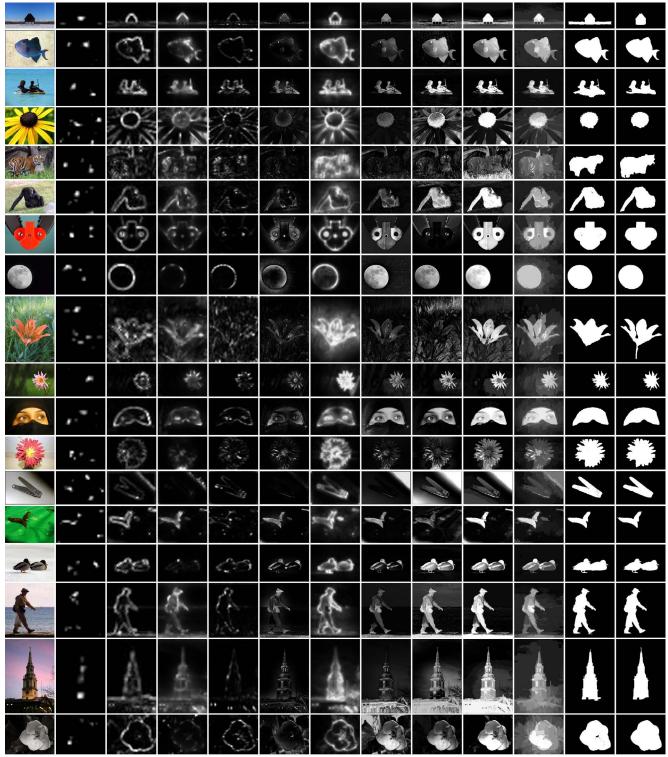
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 50. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

		123				200						
	•	1 1 N	*	O			-					
>		1 AN	D	B		b	1×1			X		
Ć?	-	RR	R.	62.	Æ.	R	R.	í E				<b>^</b>
ad.	*	cres	1-00			~~~~.						
	18 20	0	4033	60	- 0355-	0	30		•••			
AR	<u> </u>	3682	N.	der?		JUR	Hard I.	JAAR	JAND -	4-14	,тк	ξ <b>έ</b>
	•*, **	R	17 .	17		1 Ct		-404-		-		
	11	12	a sa		a n	N. T.				1571		
AREA CLOSED			A COMPANY CO	5-3 5-000	AREA CLOSED & P		AREA CLOSED 1 (r	AREA CLOSE TRACE	AREA CLOSED R	AREA CLOSED		
	$T^{*,s}$											
	• ."	0	and the second							*	¥	¥
8	• :	0	3	2	6	3	3	3	2		•	
	•	00	00	S.	10 m	0					۲	۰
	۰ ۹	No.	1/8	5	A. A	Star Barris	**	*	*	*	₩	*
	1	30	33	30	E.	Se.		¥.				
NO CLIMBING ON FENCE	•	) E		2425	NO CLIMBING ON FENCE	and a	NO CLIMBING ON FENCE	NO CLIMBING ON FEUCE	NO CLIMBING ON FENCE	NO Climbing On Fince		

(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 51. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

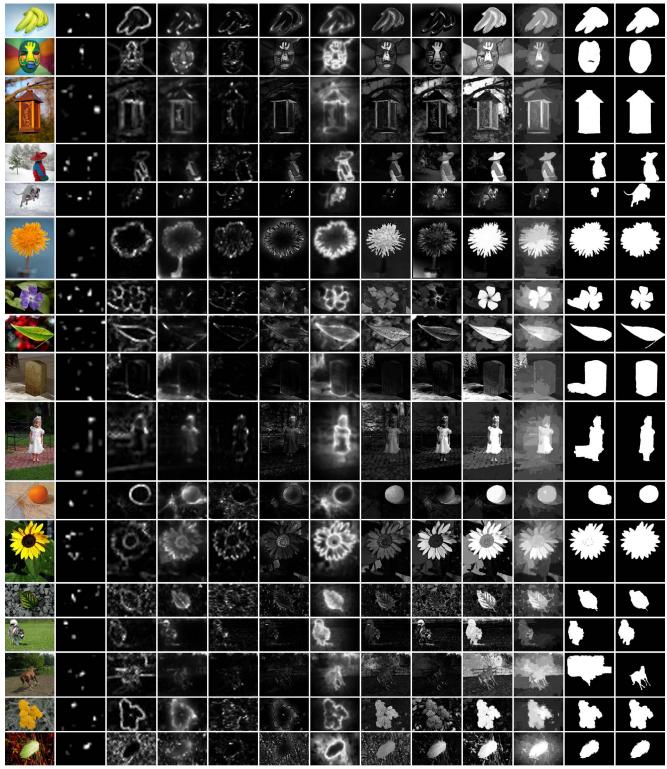


(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 52. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

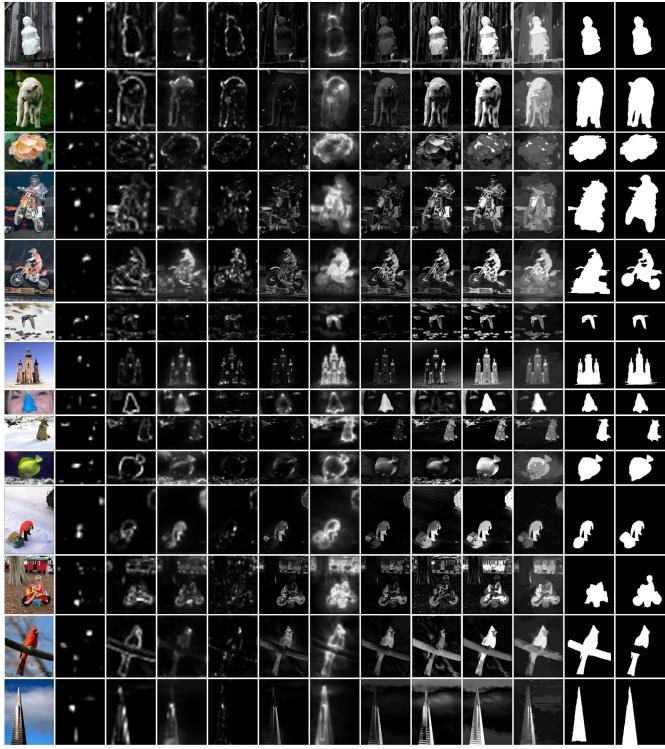


	•	3		Ĵ.	ÿ	3	ij		÷.	ł		
	•	200	C.R.	0	all in	6.7	Sec. 1	See 1	Ster 1	(the way -	Ì	Ì
		3	1	93							88	85
			S.S.	300		(B.)					a arje	***
	; e.,	-	- M			Par -				- A		Ð
0	1 (j ) 1 (j )	01	0-	0-	0 =	$0^{\circ}$	G	G				
	•	3				~ E3*	and a			<b>.</b>	Ŗ	<b>.</b>
	· · ·	Y		the second	*	-						
				De la		R				1 the second		2
			all a			The set			¥		X	¥
	- 1 ·	25	.4.		-	A.	And the second second	-recency		1		
		0	$\bigcirc$	٥r		F						
	· •.	್ವಿ	and a		***					-		
	ч с. с. •		14	14		N. T.						-
	(b) <b>IT</b> [6]		(d) GB[4]									

(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 54. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



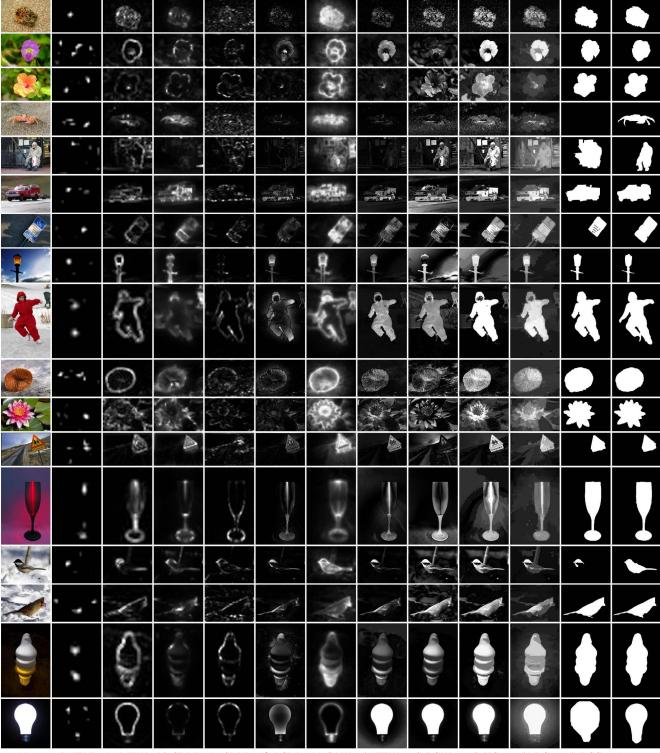
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 55. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



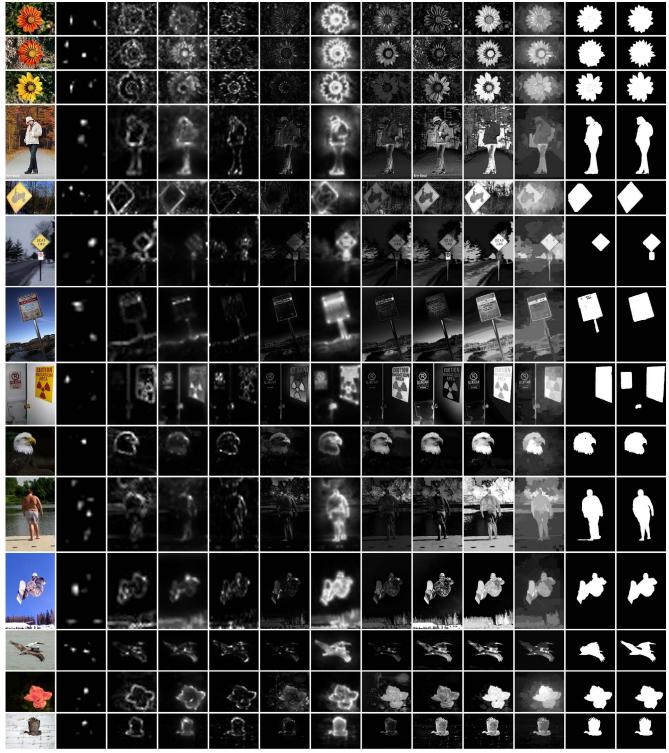
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 56. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

K	`,*	Sec.	100	R	A THE	S.	A CAR		A.	A CAL		
		Q	P.	Ą.	izos	Ð		1200	IZOP			
X	.* <sup>1</sup>	14	1.2	麻	pt.X.	至	phil.	J.K.	1 Arth	J.	<b>1</b>	X
	• ]	C.	The second	No.	S.	T'S	the second	The second				
7	*	A	T	F.		81		T	T	R	Ž	7
	 	0	12		D.	D	-				•	1
	¥.,	3	ST .	1.25	(A)	rs &	(A)		(N)		V	
Å		A	1		•	A	1	A sec	t	1	1	1
		Ell'S	1. M. C.	意言		E YE						
			良									
	1	10		6		0			53			
	. •.	₹? :)		e (35		5						~~
R		D	2	Q	0	D	٢	3				
ABA.	¢.↓	54 N.	RA.	ang nasa Ang nasa Ang nasa	供预	(17)	例例	的论	19972	R		<b>R</b> 7N
	1.1.1	3	2	()	(St	9	(SP)	Se .				
	(b) IT[6]		-10				- Rei-					

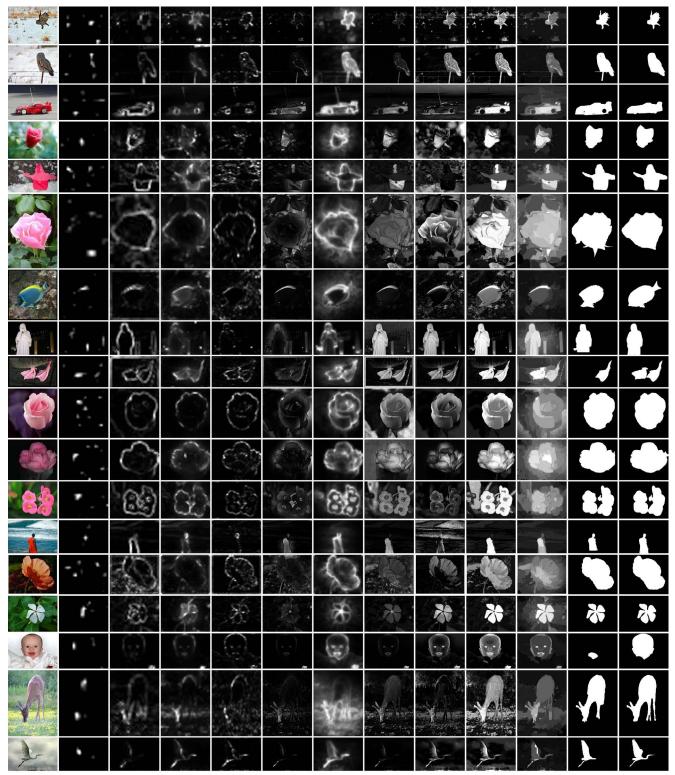
(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 57. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 58. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 59. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).



(a) (b) IT[6] (c) MZ[7] (d) GB[4] (e) SR[5] (f) AC[1] (g) CA[3] (h) FT[2] (i) LC[8] (j) HC (k) RC (l) RCC (m) g-tr Figure 60. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).

	67	4	3					+ MAILTO ROAL		<b>b</b> 7		
-	140	A.	12	Sw?	- 43	AL A		N.	No.	-	*	*
	·	Sec.	32	1 Cold	Sed .	A.S.	20			Ter.	۳.,	
	. •	0	0	1		$\mathcal{C}$						
	• •					20					X	X
		3	5	S	X	g		4		A	Y	*
	$\left\{ \cdot, \cdot \right\}$	0	3	Sale -								
×	- e, -2	22	72	22		-22	-	-	×	×	×	×
	÷., 2		AL.S		the start	1		· ·	· ·	4		
		11	2	10	100	D						
6205	i e si	233	822		£905	en es	84.5	8215	38.5	88 S		
	,	S	2	Sec.	det	0	A B	A. C.		ST.	Ì	
(a)	(b) IT[ <mark>6</mark> ]	(c) MZ[7]	(d) GB[4]	(e) SR[5]	(f) AC[1]	(g) CA[3]	(h) FT[2]	(i) LC[8]	(j) HC	(k) RC	(l) RCC	(m) g-tr

Figure 61. Typical saliency maps computed by different state-of-the-art methods (b-i) and by our proposed HC method (j) and RC method (k). Our saliency cut results (l) obtained using RC saliency maps are compared with ground truth (m).