

1 *Supplementary Table 1*

Landmarks	Definition
t11	The midpoint of incisal ridge of right maxillary central incisor.
t11A	The apex of right maxillary central incisor.
t12	The midpoint of incisal ridge of right maxillary lateral incisor.
t12A	The apex of right maxillary central incisor.
t13	The cusp of right maxillary canine.
t13A	The apex of right maxillary canine.
t14	The buccal cusp of right maxillary first premolar.
t16	The mesiobuccal cusp of right maxillary first molar.
t17	The mesiobuccal cusp of right maxillary second molar.
t21	The midpoint of incisal ridge of left maxillary central incisor.
t21A	The apex of left maxillary central incisor.
t22	The midpoint of incisal ridge of left maxillary lateral incisor.
t22A	The apex of left maxillary central incisor.
t23	The cusp of left maxillary canine.
t23A	The apex of left maxillary canine.
t24	The buccal cusp of left maxillary first premolar.
t26	The mesiobuccal cusp of left maxillary first molar.
t27	The mesiobuccal cusp of left maxillary second molar.
t31	The midpoint of incisal ridge of left mandibular central incisor.
t31A	The apex of left mandibular central incisor.
t32	The midpoint of incisal ridge of left mandibular lateral incisor.
t32A	The apex of left mandibular central incisor.
t33	The cusp of left mandibular canine.
t33A	The apex of left mandibular canine.
t34	The buccal cusp of left mandibular first premolar.
t36	The mesiobuccal cusp of left mandibular first molar.
t37	The mesiobuccal cusp of left mandibular second molar.
t41	The midpoint of incisal ridge of right mandibular central incisor.
t41A	The apex of right mandibular central incisor.
t42	The midpoint of incisal ridge of right mandibular lateral incisor.
t42A	The apex of right mandibular central incisor.
t43	The cusp of right mandibular canine.
t43A	The apex of right mandibular canine.
t44	The buccal cusp of right mandibular first premolar.
t46	The mesiobuccal cusp of right mandibular first molar.
t47	The mesiobuccal cusp of right mandibular second molar.
sN	The nasion on soft tissue.
sICa	The internal canthal point of the palpebral fissure.
sOCa	The external canthal point of the palpebral fissure.
sCh	The point at mouth corner.
sChU	The most prominent midpoint of the upper vermilion line.
sChB	The most prominent midpoint of the upper vermilion line.
sPog	The most anterior midpoint of the chin on the outline of the soft tissue.
sPrn	The most anterior point at the nasal tip.
sMe	The most inferior midpoint of the chin on the outline of the soft tissue.
uA	The most posterior midline point on the premaxilla between the anterior nasal spine and prosthion.
uANS	The sharp anterosuperior projection at the anterior extremity of the line of union of the two maxillae.
uPNS	The most posterior midpoint of the posterior nasal spine of the palatine bone.
uPo	The most lateral point on the roof of the bony external acoustic meatus, vertically over the middle of the meatus.
uOr	The most inferior point of infraorbital margin.

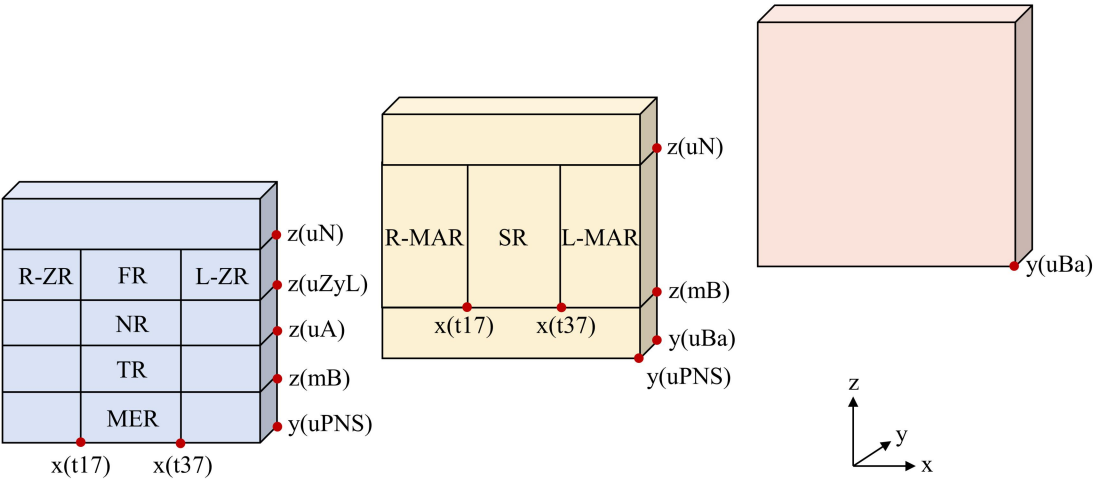
uN	The point on the skull corresponding to the middle of the nasofrontal suture.
uBa	The most anterior point at the base of foramen magnum.
uS	The center of the sella turcica on the midsagittal plane.
uZy	The most lateral point of zygomatic arch.
uZF	The most medial point of fronto-zygomatic suture.
u0	The most lateral point of the piriform aperture.
u1	The midpoint of zygomatic alveolar ridge.
mCo	The most superior point on the head of the mandible
mGo	Lines to the posterior margin of the mandibular vertical ramus and inferior margin of the mandibular body or horizontal ramus.
mB	The most posterior midline point, above the chin and on the mandible between the infradentale and the pogonion.
mPog	The most anterior p(1)oint of the mandible in the midline.
mGn	The midpoint of mPog and mMe on the mandible in the midline.
mMe	The most inferior point of the mandible in the midline.
mGF	The most anterior point of mental foramen.

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3 *Supplementary Figure 1*

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Annotation for Stage 1 of the model



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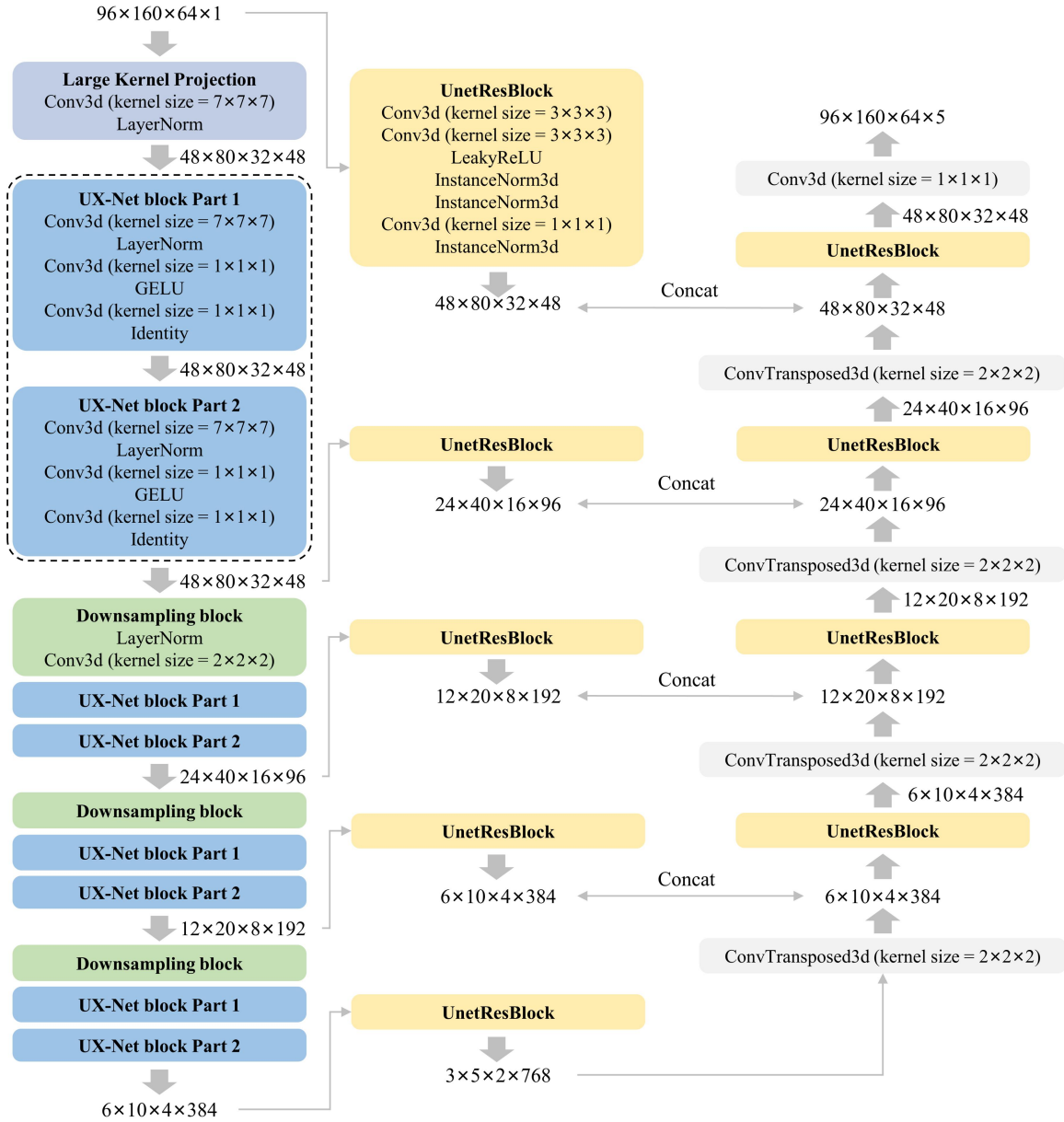
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9 *Supplementary Figure 2*

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A block diagram of UX-Net showing different layers



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15 *Supplementary Table 2*

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Input/output size of data and the landmarks in nine regions				
Region	Input size	Output size	Number of Landmarks	Detail
R-ZR	$160 \times 160 \times 64 \times 1$	$160 \times 160 \times 64 \times 5$	4	sOCaR, uOrR, uZFR, uZyR
L-ZR	$160 \times 160 \times 64 \times 1$	$160 \times 160 \times 64 \times 5$	4	sOCaL, uOrL, uZFL, uZyL
FR	$96 \times 160 \times 64 \times 1$	$96 \times 160 \times 64 \times 5$	4	uN, sN, sICaR, sICaL
NR	$96 \times 160 \times 96 \times 1$	$96 \times 160 \times 96 \times 9$	8	u0R, u0L, uA, uANS, sSN, sPrn, u1R, u1L
TR	$96 \times 160 \times 96 \times 1$	$96 \times 160 \times 96 \times 41$	40	sChU, sChB, sChL, sChR, t11, t11A, t12, t12A, t13, t13A, t14, t15, t16, t17, t21, t21A, t22, t22A, t23, t23A, t24, t25, t26, t27, t31, t31A, t32, t32A, t33, t33A, t34, t35, t36, t37, t41, t41A, t42, t42A, t43, t43A, t44, t45, t46, t47
MER	$96 \times 160 \times 64 \times 1$	$96 \times 160 \times 64 \times 9$	8	sPog, sMe, mB, mPog, mGn, mMe, mGFR, mGFL
R-MAR	$160 \times 64 \times 160 \times 1$	$160 \times 64 \times 160 \times 4$	3	uPoR, mCoR, mGoR
L-MAR	$160 \times 64 \times 160 \times 1$	$160 \times 64 \times 160 \times 4$	3	uPoL, mCoL, mGoL
SR	$96 \times 96 \times 160 \times 1$	$96 \times 96 \times 160 \times 4$	3	uBa, uS, uPNS

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